

# AMERICAN FRUIT GROWER

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Edited by Samuel Adams



*Modern farm group with inside entrances to the buildings. Illustration shows them roofed with red Everlastic Multi-Shingles (4 in 1).*

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No. 6

## Some Insect Pests of the Apple Orchard

By Glenn W. Herrick

Professor of Economic Entomology at Cornell University



SOME years ago Dr. J. A. Lintner made a list of three hundred and fifty-six species of insects that are injurious to the apple. Many of these insects, in fact the majority, are not important. Probably the really serious pests of the apple may almost be counted on the fingers of one's two hands. They may be named in about the following order of injuriousness at the present time, considering the United States as a whole: codling moth, round-headed borer, woolly aphid, rosy aphid, apple leaf aphid, san Jose scale, bud moth, spring canker-worm, apple-tree tent-caterpillar, plum curculio, flat-headed borer, and apple maggot.

The codling moth is undoubtedly the most injurious insect pest of the apple. It occurs in every state in the union in which apples are grown and has been estimated to cause an annual loss of over \$16,000,000 to the growers of this country. About one week after the petals fall from the apple blossoms, the majority of the small grayish moths appear and they soon begin to lay their milk-white eggs on the leaves and sometimes on the branches and young apples. The larger part of the larvae from these eggs enter the apple through the calyx end and spend about 30 days in the apple. In New York there is a partial second brood of "worms" that appear during the last week of July or first week of August. These larvae enter the apple more frequently through the sides of the fruit and only spend about three weeks in the apples.

### Control of the Codling Moth

The codling moth is controlled by spraying with arsenate of lead, 4 or 5 pounds to 100 gallons of water, as soon as the majority of the petals have fallen. This is the most important spray for this



Spray for the Aphids When They are Clustered on the Opening Buds

up to grass and weeds. Therefore, clean culture is a fine preventive measure. The surest method of control is to cut the borers out by hand with a sharp chisel. The wounds should be given a coat of gas tar to prevent the entrance of fungi. Wrappings of newspaper extending about two feet up the trunk of the tree and tied on with cord which will yield or break with the growth of the tree, are said to give excellent protection from the borer. The papers should be put in place early in May.

### Facts About Aphis

The rosy aphid and the apple-leaf aphid are apple pests much dreaded by the grower. Each of these aphids in the fall lays its tiny black, shining eggs on the branches of the apple where they remain until spring. As the buds begin to swell and show signs of opening, the eggs hatch and the young lice cluster on the opening buds. The rosy apple aphid is purplish-brown in color and usually covered with a white mealy substance (wax). At least three generations are produced on the apple. Some of the individuals of the third generation and probably all of the fourth generation are winged and fly from the apple-tree to the broad-leaved and narrow-leaved plantain where the summer is spent, the aphids



The Work of the Apple Maggot

pest and should be done very thoroughly. Many careful growers prefer to make a second application of poison about three weeks after the first, taking pains to produce a fine misty spray to coat the leaves and young fruit.

Next to the codling moth the round-headed apple-tree borer is considered the most serious pest of the apple. The white-lined beetle deposits its



The Codling Moth, 2½ Times Its Natural Size (H. H. K.)

eggs in crevices cut in the bark on the trunk of the tree in May and June and even later. The grubs hatching from these eggs bore beneath the bark, and as they grow older tunnel deeper and deeper into the wood. They usually work near the ground and often ruin trees, especially young ones. In New York, the insect probably has a three-year life cycle, but farther south the grubs may mature during the second summer, thus completing the life cycle in two years. This pest is worse in orchards that are grown

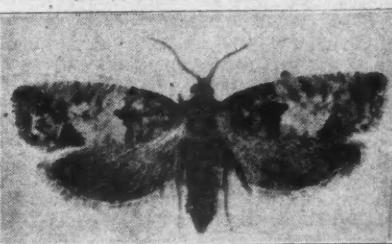
returning to the apple in the fall and depositing their eggs, thus completing the cycle. The apple leaf-aphis lives on the apple the whole year and is probably the worst pest of the two species. These aphids stunt the succulent growth of branches, curl the leaves, and deform the fruit.

They are best controlled by spraying with nicotine-sulphate,  $\frac{1}{4}$  of a pint to 100 gallons of water, to which 4 or 5 pounds of soap have been added. The application should be made just as the buds are breaking, for at this time the young nymphs which are clustered on the buds are easily killed.

### Bud Moth is Destructive

The bud moth is widely distributed in the northern part of the United States from Massachusetts to Oregon and is a destructive pest of the apple. The adult is a small, dark, ash-gray moth with a broad, cream-white band across the middle of each fore wing.

The partly grown, brown larvae pass the winter in silken cases placed near a bud or under a scale of bark. In the spring these tiny caterpillars become active and begin to eat into the swelling buds. As the buds develop the larvae tie the leaves together and live inside the tangle mass where they finally change to pupae during the month of June. In about 10 days the moths appear and lay their tiny eggs on the under sides of the leaves. In 7 to 10 days the eggs hatch and the young caterpillars eat off the epidermis of the leaves so that only a network of veins is left. In August and September the partly grown



The Bud Moth, 5 Times Its Natural Size (H. H. K.)

larvae migrate to the branches and pass the winter in their silken cases, ready to attack the buds again in spring.

In cases of serious infestation, the trees should be sprayed with arsenate of lead, 2 pounds to 50 gallons of water, as the flower clusters begin to appear; repeat just before the blossoms open. If these two applications are followed by the first codling moth spray after the petals fall, the insect should be fairly effectively checked.

### San Jose Scale Is Decreasing

The san jose scale, formerly considered one of the worst fruit pests in this country, is apparently on the wane, at least in the east. Parasites, short season, and perhaps other factors, have contributed to the decline of this insect in New York state. It is not yet, by any means, a pest to be neglected or overlooked and should still be fought with persistence if present in an orchard. The insects pass the winter

in a partly grown condition beneath tiny, circular, black scales on the branches of the trees. In the spring they become full grown, and in a normal season a generation is produced in about fifty days. In long, warm seasons there may be three broods in New York state while in cool, short summers not more than two generations may be produced.



The San Jose Scale on Pear

The universal spray mixture for this insect is lime-sulphur, 1 gallon to 8 gallons of water, when it tests about 32° Baume. It may be applied in fall or spring and in cases of bad infestation should be applied at both of these periods.

The spring canker-worm is a widely distributed pest of the apple, and although not now as serious in New York state as formerly, it should be watched. The females are wingless and must crawl up the trees in order to deposit their eggs. Consequently they may be caught in large numbers by banding the trunks of trees with tanglefoot. The tanglefoot should be spread on a band of tarred or other heavy paper tied around the trunk with all of the cracks and crevices in the bark beneath filled with cotton. These bands should be applied late in February or early March. In addition the caterpillars may be killed while young by spraying infested trees with arsenate of lead, 5 or 6 pounds to 100 gallons of water. Thorough cultivation of infested orchards in August and September destroys the pupae.

The apple-tree tent-caterpillar often occurs in large numbers over wide areas



The Time to Spray for the Codling Moth

and defoliates the apple trees if spraying is neglected. The eggs are deposited during the last of June or first of July.

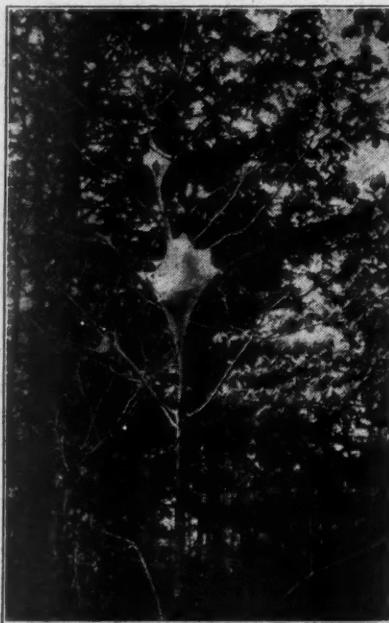


The Roundheaded Apple-Tree Borer (M. V. S.)

in ring-like masses encircling the smaller branches. They do not hatch until the following spring just as the buds are



Spring Cankerworms



Tents of the Apple-Tree-Tent-Caterpillars on Wild Cherry

swelling. The young caterpillars attack the buds and soon build silken, tent-like nests in the crotches of the branches. Infested trees should be sprayed while the larvae are young with arsenate of lead, and the application should be repeated in a few days if necessary. The egg-rings may be collected during the fall, winter, and spring and destroyed. Wild cherries and seedling apple trees along fence rows and in neglected places should be destroyed because they serve simply as breeding places for these pests.

The apple maggot is a native insect that originally fed on thorn apples. The small, white maggots tunnel through the flesh of the apple and finally cause decay and total ruin of the fruit. The flies have a habit of sipping food from the surface of the leaves and fruit and may be poisoned by spraying the trees with a sweetened poison mixture composed of 2 pounds of arsenate of lead and a gallon of water. For summer and early fall apples the first application should be made in early July and repeated once or twice if the infestation the previous year has been serious, or if rain has closely followed

#### Summary of the Time and Materials Used in Spraying an Apple Orchard

TIME	MATERIAL	FOR WHAT
Before buds start	DORMANT Lime-sulphur 1 to 8	Scale, blister mite
When leaves of blossom buds are out $\frac{1}{4}$ to $\frac{1}{2}$ inch	DELAYED DORMANT Lime-sulphur 1 to 8 "Black leaf 40" $\frac{1}{4}$ pt. in 100 gals. (Arsenate of lead 5-6 lbs. in 100 gals.) (If this spray is applied it will not be necessary to make the "dormant" application.)	Scale, blister mite Aphis (Leaf roller, cane bearers)
When blossoms show pink	BLOSSOM-PINK Lime-sulphur 1 to 40 Arsenate of lead 5-6 lbs. in 100 gals. ("Black leaf 40" 1 pt. in 100 gals.)	Scab Bud moth, cane bearers, etc. (Dark apple red bug)
When the last of the petals are falling	CALYX Lime-sulphur 1 to 40 Arsenate of lead 5-6 lbs. in 100 gals. ("Black leaf 40" 1 pt. in 100 gals.)	Scab Codling moth (Bright apple red bug)
To be determined by weather conditions and control of scab	LATER SPRAYS Lime-sulphur 1 to 40 Arsenate of lead 5-6 lbs. in 100 gals.	Scab Codling moth, other caterpillars

the first application and has washed it off. Thorough and clean cultivation of neglected and badly infested orchards seems to aid in checking the pest.

#### Circulio Causes Much Injury

The plum curculio is an old offender in scarring and deforming apples. Fruits punctured early in the season are liable to drop, but if they remain on the trees they often become knotty and deformed. It injures the apples by making crescent-shaped egg scars on the fruit, which, as the apple grows, gradually expand and develop into characteristic shield-shaped, russeted scars. In addition to this the curculio feed on the fruit making circular, shallow cavities in the sides of the apples. Often, especially late in the season, these pits become deepened and enlarged, and the orifice of each becomes surrounded with a narrow black ring of skin.

In preventing ravages of the plum curculio, it is important to practice clean cultivation of the orchard, to clean up all hedgerows in the vicinity, and to prune the trees judiciously to admit sunlight, for sunlight and heat are destructive to the grubs of this insect. In addition, thorough applications of arsenical mixtures, especially the first and second codling moth sprays, are perhaps the most important means of prevention.

The applications should be made in a thorough, careful manner.

Miss Elizabeth Bass, who ran a canteen before going to France as a canteen worker, has the, so far as we know, unrivaled record of turning out 5,000 doughnuts per day single handed. With assistants it is said she can produce 80,000.



Work of the Plum Curculio in Scarring Deforming an Apple (H. H. K.)

## Why Not Have a Blueberry Patch?

By M. T. Bly, New York

HERE are folks who cannot eat strawberries. The acid produces an eruptive disease sometimes called strawberry rash. Other folks cannot eat blackberries. The hard seeds bring on intestinal troubles. The blueberry has neither an excess of acid nor a plethora of hard seeds. What is more healthful or palatable than a service of fresh picked blueberries with cream? The plant is not indigenous in all localities however. Fruit which has been roughly stripped from the bushes by the market picker and comes littered with leaves and twigs, crushed and decayed berries, besides the dust of a journey, is not inviting.

Every home garden can have its blueberry bushes. They will prove a delight to the eye as well as a joy to the palate. While one cannot write his nurseryman: "Please send me ten of your Excelsior blueberry plants for which I enclose one-fifth," there are ways of securing them even though they do not abound in ones own locality.

Experimental work in domesticating the wild plant, which was begun by the department of agriculture some fifteen years ago, has been continued by private individuals. Commencing with selected wild plants, cross pollination has been practiced until tested and named varieties have resulted. They produce berries nearly an inch in circumference. They are catalogued at \$25.00 per plant, two for \$45.00.

Inasmuch as the average home gardener is not likely to take advantage of the discount by ordering in quantity, we will dismiss that source of supply and suggest one more economical. Offer a prize to the boy or girl who finds the biggest blueberry and tag the bush. Keep on tagging bushes, especially those which are prolific bearers.

If the plant is not common to your locality, there are parties who make a business of collecting wild plants for sale. These plants are not likely to have been selected by reason of their fruiting qualities, but they may have been transplanted to nursery rows and received cultivation for a season or two. Their root system will thus be superior to that of the plant taken from the wild blueberry patch.

#### Blueberries Need Special Soil

I have had good success in transplanting blueberry plants in the fall. The ground where they are to be set must be especially prepared for them. I trust that this detail will not discourage anyone who loves the fruit. They might just as well be planted in the middle of the road as in the soil of the average garden. They are not yet domesticated. They require an acid, peaty soil like that of their native haunts. Dig a trench eighteen inches deep and two feet wide and fill it with sandy surface soil from the woods. In my own experiments I have used soil from woods where the timber was oak and chestnut. Scrape it into piles with a hoe, gathering only an inch or two of the surface and taking along the partly decayed leaves. Dig the tagged bushes carefully and cut the tops back severely.

It is a rude shock to a wild, fruiting plant to take it from the place where it has passed its life in its natural environment and carry it out to civilization—like transporting a Rocky Mountain Indian from his native fastness and setting him down amid strangers at Forty-second Street and Broadway. But the plant is so hardy that

I have known them to fruit the first season after transplanting. They should be deeply mulched with partly decayed leaves. This will provide the moisture which they crave and to which they have been accustomed. The leaf mulch is best, because it is all the time providing the acid peat and, if the mulch is renewed sufficiently and is thick enough, no cultivation whatever need be given.

There are three varieties commonly growing wild in the north United States and Canada. Botanically, they are *Vaccinium Pennsylvanicum* or dwarf blueberry; *Vaccinium Vacillans* or low-blueberry and *Vaccinium Corymbosum*, the common swamp blueberry. I have had good success in transplanting the last named variety, but because it is called the swamp blueberry and grows wild in boggy places, it doesn't follow that it should be transplanted to low or wet locations. The better practice is to put it in well drained ground and provide moisture by the leaf mulch, intensive cultivation or overhead irrigation. This variety frequently attains a height of ten feet and requires room to expand. The plants should therefore be set five feet apart in the row and the rows should be eight feet apart. If they receive an occasional dressing from the barnyard they will lustily fill all the space allotted to them.

The practice of blueberry culture is easy if the practitioner will only observe the habits of the plant in its wild state and endeavor to reproduce the wild conditions. In a blueberry swamp one does not find the bushes doing their best in standing

water, but on a mound or stump top. On the islands fringing the north shore of Georgian Bay they are found fruiting abundantly as to give a blue tinge to the landscape, and it is only six inches to the solid rock. The roots however, are protected from the direct rays of the sun and moisture is provided by a thick carpet of moss and leaves.

#### BULLETINS WORTH READING

Varieties of Apples for the Home Orchard, Circular 12, Missouri State Fruit Experiment Station, Mountain Grove Mo.

Farm Practices that Increased Crop Yields in Kentucky and Tennessee, Farmers' Bulletin 981, U. S. Department of Agriculture, Washington, D. C.

Control of Ground Squirrels by the Fumigation Method, Bulletin 302, Agricultural Experiment Station, Berkeley, Cal.

Laws Relating to Fur-Bearing Animals, 1918, Farmers' Bulletin 1022, U. S. Department of Agriculture, Washington, D. C.

Culture of Garden Rose, R. F. C. 12, State College of Agriculture, Ithaca, N. Y.

The following bulletins can be obtained from the Federal Board for Vocational Education, Washington, D. C.

To the Disabled Soldier and Sailor Joint Series No. 1.

To the Soldier Returning to Civil Life, Monograph No. 2, Vocational Rehabilitation Series No. 2.

To the Household of the Disabled Soldier and Sailor, Monograph No. 2, Rehabilitation Joint Series No. 2.



# Orchard Problems and Their Solutions

*By Paul C. Stark, Associate Editor*

**W**HAT varieties of apple, cherry, plum, pear and crab do you consider best for Oneida County, Wisconsin? Would also like advice concerning pruning of these trees. Would the modified leader type be good for apple, cherry, plum and pear?—J. D., Wisconsin.

A. We recommend the following varieties for your selection: Apples—Duchess, Wealthy and Early Melon. Cherry—English Morello and Montmorency. Plum—Terry, Surprise, Omaha and Hansen Hybrids. Pear—Seckel and Flemish Beauty. Grape—Hyslop and Transcendent. I advise pruning your one-year apple back to 24 or 30 inches from the ground and training the head below that. For apple, plum and pear trees, I prefer the open head. With cherry the modified leader type could be used successfully.

Q. Can you recommend to me a variety of pear that does not blight?—C. H., Illinois.

A. I know of no pear that is absolutely blight proof. Lincoln (True Lincoln of Illinois) is nearer free from blight than any good pear I know. Benjamin Buckman of Illinois, a national-known authority, says they are free from blight than any other good kind. Thos. F. Rigg, well-known horticultural writer and experimenter, says that it is practically free on his grounds. I believe it will pay you to use Lincoln.

#### Good Whitewash Formula

Q. In this locality, the trees must be covered with something like whitewash to prevent sunburn and keep out the flat-head borers. The small trees which sway in the wind, the whitewash will almost immediately crack off and requires frequent renewing. What kind of whitewash could I use? Can you give me formula?—R. H. W., Oklahoma.

A. The following is a good formula for whitewash:

Slake one-half bushel lime in boiling water, keeping it covered. Strain and add brine made by dissolving one peck of salt in warm water, and 3 pounds of rice flour, then boil to a paste. Add one-half pound whiting and one pound glue dissolved in warm water. Mix and let stand few days before using.

By having the glue, rice flour and salt in this mixture, it is naturally more adhesive than common whitewash and should give you good results. However, do not believe you will find a whitewash that will keep out borers.

Many orchardists have had good results by painting the bodies of their apple trees with white lead mixed with raw linseed oil.

Q. Is it all right to cut two-year-old trees back to a single stem and let them form new head, when they have been allowed to head too high in the center? How do you prune a tree that is forked?—O. P., Arkansas.

A. It is rather dangerous to cut off all new wood on a two-year-old tree and especially to produce a low head. As this old wood generally does not throw out new branches freely, and you may not be able to get the limbs you will need for the framework. It is best in pruning two-year-old trees to take branches that are already formed and cut these back, leaving from 4 to 6 inches on each branch. In pruning badly forked trees, it is advisable to cut off one limb, so as to do away with the fork and then train your head on the remaining limb. This is a general rule, as the pruning often depends upon the type of your tree and the way the fork is arranged.

Q. Please advise me how I should prune the apple trees in my orchard and also give me some advice concerning grape pruning.—W. A. T., Wisconsin.

A. Don't know just how to start to tell you how to trim and care for your orchard. In the first place, would suggest that the pruning of trees should begin when trees are planted and they should be pruned regularly, keeping them in shape, as they grow. However, if this orchard is an old one and you wish to prune it, would suggest that the first thing to do is to open up the middle of the tree. The main object in pruning an old orchard is to get it open so the sunlight and air can get through. If you will take the January number of the AMERICAN FRUIT GROWER and look for the article on pruning prepared by the writer, think you will find

each operation covered. In regard to the pruning of the grapes, if you will be definite and tell me just what shape your vines are in and how old they are, how they have been pruned, etc., will be glad to give careful attention to your inquiry and go into the matter with you.

#### Pollination Necessary

Q. I have some 800 12-year-old apple trees that bloom profusely, but fail to set fruit. I have tried summer pruning and have also tried stable manure and nitrate of soda, but to no avail. They have only borne one crop and then did not bear heavily. They are healthy trees, free from disease but will not set fruit. What is your advice as to handling this orchard? There are no bees near to help with the pollination and I expect to put in ten or twelve hives. Have also, replaced with Delicious, as this variety blooms at the same time.—J. H. M., South Carolina.

A. You are right in arranging for bees in the orchard. In addition to replacing with Delicious for cross-pollination purposes, believe it would pay you to top-work scattered trees to this variety throughout the orchard. You will find it one of the best pollinizers. There are just two things to do in this orchard. First, try to cross-pollinate them by top-working other varieties scattered through the orchard. Second, to top-work the entire orchard. One-half of one crop would more than pay for the expense of top-working and then you would have something worth while. Life is too short to fool with trees that do not bear. Particularly, in these days of high fruit prices.

#### Spraying Young Trees

Q. I planted some fruit trees, different varieties, and they are growing nicely. Should they be sprayed, and what with? I sent for some corrosive sublimate and it came in a powder form. I presume it should be diluted. Will you kindly tell me what proportion?—J. B., Kentucky.

A. Your young trees will probably not need spraying this year. For the first two or three years spraying should be unnecessary, unless you have some pest in your orchard. Cultivation is the most important thing with young trees. Corrosive sublimate is used to kill the fire blight canker on pear or apple trees. Use one part to one thousand parts of water. This usually comes in the form of a tablet and is diluted at the rate of one tablet to one pint of water. Be sure to mark the bottle "POISON." After each blighted limb or canker is cut out, wash the wound with corrosive sublimate and also after each time you cut out a limb, particularly in a pear orchard, wipe the pruning tool with a sponge which has been wet with the corrosive sublimate solution.

Q. I have been informed that an old orchard site is not a suitable place to plant a young orchard. Will you please advise me? Choice is to be made between an old orchard site on a well drained, gentle slope and a rather steep hillside where shale is near the surface. The old orchard has had regular farm crop rotation and soil is in fertile condition.—H. K. D., Pennsylvania.

A. From your description, believe you will get better results by planting on the old orchard as soil is in good fertile condition. My suggestion is that you blow out all old stumps and then plant rows in between where the rows of the old orchard stood. By following this method, you should get good results.

#### Where to Plant the Orchard?

Q. I expect to soon buy a piece of land. What kind of soil is preferable for an apple orchard? Should it be set on the east and south slope of the hill? How sloping does hill dare be for best results? What age trees do you recommend? Do you advise fillers, and if so, what kind?—R. W., Ohio.

A. Any good, average farm soil will grow good apple trees. I have personally seen splendid orchards on very heavy clay soil, medium soil and on sandy soil. But as a general rule a loamy soil with clay sub-soil is preferred. As to the hill slope, the southwest slope is generally considered the least desirable. The east and northeast slopes are generally preferred. However, judging from my observation, do not

believe that it makes very much difference which slope you use, as some of the very finest orchards and most profitable ones are growing on south and southwest slopes. Just so your hillside is not too steep to prevent a spray rig reaching the trees, is all that is necessary. Some of the best orchards in the country are grown on steep hillsides. A location of this kind gives good water and air drainage and is recommended for orchard purposes. On a hillside that is so steep that cultivation will cause washing, we advise the use of clover which will prevent this. I prefer a one-year-old apple tree, although many orchardists like a two-year-old. The shock in transplanting a one-year-old tree is less than that of a two-year-old, and besides you can shape the one-year-old tree just as you want it. I advise fillers, but at the same time always warn planters that the filler trees must be removed before they begin to crowd the permanent trees. For northern Indiana and Southern Michigan I would advise Stayman Winesap, Grimes Golden (Double-Worked), Wealthy, Duchess and Delicious.

#### One-Year Trees Best

Q. Isn't it a fact that a three-year-old apple tree will bear fruit younger than a one-year-old tree planted at the same time?—C. W. W., Missouri.

A. My experience is that a three-year-old tree will not bear fruit one day earlier than a one-year-old tree planted at the same time and given equal care. The shock of transplanting an older tree checks the growth, because of the large roots that are cut off. The one-year-old tree has no large roots, but many small, fibrous roots which makes a quick start and good growth the first year or two. You will find that it will overtake the three-year-old tree in size by full bearing time.

Q. Can you send me, or tell me where I can get, information on grafting apples? What is the best time of the year and the best methods? I have never had any experience.—J. F. B., North Carolina.

A. You can top graft apple trees any time while the trees are dormant. The best time is just before the sap starts up in late winter or early spring, after danger of severe weather is over. The operation of grafting is rather a long and difficult one to explain and it would be best for you to see diagrams showing every operation. My suggestion is that you get in touch with your State Experiment Station at Raleigh, or get a copy of "The Nursery Book," by L. H. Bailey.

Q. In your opinion is Stayman Winesap a good apple to grow in Connecticut?—F. W. L., Connecticut.

A. The Stayman Winesap will stand considerably farther north than the old Winesap, and I feel sure you could grow it all right in your section. The Stayman is a very popular and profitable sort. It, like most other apples, and humans too, has its faults, but the Stayman has made big money for many growers. After Christmas it is one of the best eating apples one can imagine and of course it is in prime condition before the holidays, too.

#### BERRY PICKING PROBLEMS

By Lewis Hillara, Kansas

Near here is a fairly large fruit farm—the only one in this locality—and last summer, while parties from all around were calling for berries, nearly half the crop was allowed to spoil in the fields. They said no pickers could be had, and yet they were selling the berries at a price that would have warranted them in paying twelve to fifteen cents a quart for picking. I knew parties to pay \$2.75 per twenty-four pint crate. One family, when they found they could not get berries at all if they did not pick them, asked if they could get them that way, and were told they could have them for \$2.00 a crate and pick them.

They did not know they were getting pints so thought that was very reasonable. They picked about eight gallons in bulk, and when they went to pay for them it took a five-dollar bill to do it. They came away feeling that that man was somewhat hoggyish, for fruit was rotting under the raspberry bushes at the time, and blackberries

were dead ripe and a lot of them were bound to be lost. They could have seen that man several people glad to pick their own fruit at a reasonable price, but few would care to pick berries half a day for seventy-five cents and then pay a high price for them in addition.

#### How to Secure Pickers

Often it is hard to get pickers, but when fruit is so high, it seems that a man can pay enough to make it worth while for pickers to go into his patches. The great problem comes when prices are low and we have to pay so much to get them picked that we have very little left. This man allowed six cents a quart for picking, but he could have paid much better. I have had strawberries to sell for ten cents a quart, twelve quarts for a dollar, and those days pickers were willing to take three cents a quart. Blackberries sold at the same prices, and were picked for the same.

Letting people pick on the shares in way some growers I have known have managed the problem when pickers were scarce. I knew one man who had seven hundred cherry trees loaded with fruit, who allowed one-third for picking. He had all the pickers he could use, for the neighbors, who would not pick for cash payment were glad to pick on the shares, and the whole family often spent a whole day in his orchard. This fruit man I have mentioned near here would have been much ahead had he followed this plan with his berries, or made a fair reduction for the picking. Another man I knew let children pick berries in his strawberry patch on the shares, giving them one quart for picking him two—the same share that the cherry man gave.

#### TREES WITH BALANCED ROOTS

You can hear a lot about the kind of trees and which is best—budded, grafted, whole root, piece root, or double worked—but if we are very careful about getting a tree with clean even roots well balanced around the main root, we will not need to bother much about how it was produced. The vital thing is to get a good root, and this we can be sure of getting only when we buy of a reliable nursery and insist on the kind of tree, or see the root of the tree we buy before we take them.

If you are offered a tree with a main root going off at an angle with a couple or three little branch roots at the tip going off in the same direction, or not much differing, it will be the safest plan to pass that tree up. Its root system will be developed mostly in the direction these roots have taken. It will hardly produce a first class tree.

If the tree has roots spreading about equally in all directions, and there is no evidence of sending out frequent branches, you know that the tree will have an even root system if the soil conditions are all right. Such a tree will give the maximum growth under the conditions under which it is grown.

#### Buy Only Good Trees

If you will buy first class trees with only tops you will get this kind of root generally, for they will produce strong tops in the same length of time. When the trees are sold by the size without reference to age, many times they will be marked first class when they have attained this size only with an extra season's growth. This is not really a first class tree at all, and should not be purchased as such. A smaller tree without the extra season's growth might well be a better tree.

I think the finest trees I ever received, considering the roots, were Junebud peach, first class, 18 to 24 inches in height. I have purchased yearling trees with no better roots, and seldom as well balanced, though budded trees are usually pretty well balanced. I have grown apples from good crown grafts that were as well balanced as any budded trees, but I have purchased them at times so lop-sided that I could not advise their being planted at all. It is poor economy to plant a poor tree. It takes years to grow a tree to full bearing and the chances are that if we ever get a good tree from one of these it would be at the expense of an extra year or two of growth. Remember it isn't the first crop you lose, but the next one after the last you gather. You should have gathered your last a year sooner.

# With Our Editor

## Plant More Apples

A RECENT investigation made by the United States Department of Agriculture, shows that very little planting of apple trees has been made since 1910. Our largest single commercial apple-producing section is western New York, in which the trees have already reached their maximum production, producing regularly about one fourth of the crop of the country, the trees being for the most part nearly 50 years old. Although trees thereabouts maintain their vigor longer than anywhere else in the United States, this cannot be kept up indefinitely and the center of production may soon shift. The New England Baldwin belt shows similar declines.

We are looking for a greatly increased demand for apples from the export markets, and this demand cannot be met by trees planted within the last few years as apples take longer before coming into full bearing than many other fruits. The newest centers of production are the Pacific Northwest and the Cumberland region of Virginia, West Virginia, Maryland and Pennsylvania. These two regions, with New York, produce about five-eighths of the commercial apple crop of the United States.

The Shenandoah-Cumberland region has not yet reached its maximum, while the Pacific Northwest is producing almost as many commercial apples as New York. Other considerable commercial producing apple regions are the Piedmont district of Virginia, the Hudson Valley, southern Ohio, western Michigan, southern and western Illinois, the Ozark mountain region of Arkansas and Missouri, the Missouri river region of Iowa, Missouri, Kansas and Nebraska, the Arkansas valley region, California and Colorado.

Regular monthly government reports will be issued during the growing season, forecasting apple production. This service has been extended to peaches and soon will include pears and other fruits.

## What Profiteth Prohibition?

THE INSPIRING old hymn—Onward Christian Soldiers—has a striking line, "Counting gain but loss." That's the kind of gain that the liquor traffic has so far brought us in revenue, in short-lived hilarity, in tippling tourists. All this gain, which is loss, will cease on July 1st, 1919. Now let us see what real gain (not what moral gain, for that has been dwelt on in every pulpit and in almost every home in the country) but what actual gain in dollars and cents, we may look for.

Prohibition will save annually \$3,000,000,000 which was formerly spent on various forms of liquor. That's a big purchasing power. It can do much for the country in a constructive way. Much for the home in the way of better living, less spent on drink, more on necessities and comforts.

When prohibition was a state question, there was room for argument as to whether a town would lose its tourist trade through

going dry, for tippling-tourists might skip the dry town and run on to the wet. Now, however, they would but run out of the frying pan into the fire, from dry to dry, so what would be the use? But even during the period of semi-drought the forecast of the pessimists failed to materialize. Denver, essentially a tourist town, felt many qualms lest the touring public would give her the go-by when she went dry. Instead, this trade actually improved, and she found to her innocent surprise that people do not travel for the sake of drinking. After all, the devil is seldom so black as painted.

A certain eastern city, which went dry a year ago, had three prosperous breweries. Their product retailed for about \$3,300,000. Eight-tenths of a barrel of beer was consumed annually per capita. Now eight gallons of ice cream are consumed per capita, and this retails for \$4,200,000. One of the converted breweries which now manufactures ice cream, has increased the value of its product nearly 150%. Necessity mothers many inventions. Yankee boys, including brewers, are such a smart lot that they will not sit back and drink salt tears for cocktails. They will put their wits to work in good earnest and convert liquor plants into some profitable industry.

## Use Good Spray Material

THE PRACTICE of employing some outsider to spray the orchards, has given rise to a situation which should be carefully avoided. These sprayers have no personal interest in the orchard sprayed and, naturally, the cheaper the material they use, and the less time they spend on each tree, the larger their profits.

Do not be deceived by the man who offers to spray your orchard at an unusually low sum per tree. It will be money thrown away by you, however cheaply it is done, unless you have assurance of the excellence of the material to be used and the skill and honesty of the man who is to do the work. Such a man is unapt to be looking for the extra cheap job.

The practice of spraying is now widespread, and no one attempts to raise commercial fruit without its aid. However, many still need to be impressed with the importance of thoroughness and frequency. The number of sprays to be used varies according to the locality, but the quality of spraying material should never vary. None but the best should ever be used.

## Practical Psychology

PSYCHOLOGY is defined as "The Science of the Human Soul and Its Operations," small wonder that the most advanced students have the modesty not to assume that they know all or half of what can be learned on this subject, which, while dealing with the intangible, is yet highly practical.

None of us should fail to know some of its rules. This is the science which has groped

its way forward to the point where a test can be made which indicates along what line of work the individual can succeed. We have all realized that two persons of equal intelligence cannot be equally successful at a given task. One may show surprising aptitude where the other makes a mess of it. Many failures in life will be averted by faithful and cautious effort along this line.

Again, it is now certain that our emotions have a definite effect upon our health and efficiency. Anger generates a positive poison in the system, fear and joy have distinct physical effects. This appears to be the logical foundation of Christian Science which, to most of us, seems to have built too high on the fact that the mind controls the body.

Have you noticed for yourself that, if you sustain a disappointment early in the day, that day is apt to be a heavy one even if you forget the circumstance that depressed you? Is your digestion as good after a fit of unreasonable anger as after a pleasant chat with a dear friend? Cannot you plainly note that, when one person in the household starts out with fretful irritability, the infection spreads and the peace of the family is endangered for the time being?

Recognition of these facts places us under a double responsibility for we know that our mental attitude affects not only ourselves but our surroundings. A sunny disposition is a gift of God, but all may cultivate the ability to look on the bright side and keep their glooms to themselves rather than prey on their own energy and that of others.

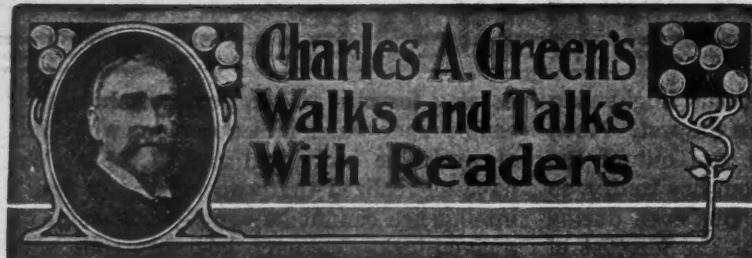
## The Taxless Town

OUR ATTENTION is called to an article in the London "Mail," which tells of the taxless town. Unless we had read this, we would have been disposed to say, "There ain't no such crittur." Yet Sweden has produced it. Not only does the town of Orson impose no taxes but there is no charge for telephone service, schools, libraries or the use of the city railway.

Perhaps it is as well that there are restrictions on foreign travel this summer, or that thrice-blessed town might receive an enormous increment of readers of the AMERICAN FRUIT GROWER. Still, most of us prefer the United States with taxes, to Sweden without, and we are only curious to know how the miracle happened. Here's the explanation.

"All this is due to the wisdom of a former generation who planted trees on the available ground, with the result that during the past 30 years the town authorities have sold \$5,000,000 worth of young trees and timber, while judicious replantings have provided for a similar income in the future."

Mourmalon, France, goes still further. The communal lands provide enough timber to allow each person a small annuity! We are tempted to exclaim with the poet "The force of Nature can no further go." If these things have a moral, it surely is—Plant More Trees and Conserve the Forests.



## Learn a Trade

**T**HREE was a time in the history of the world when it was deemed wise for every individual to have a trade. The son was expected to learn how to do some one thing better than another. He would learn how to make boots and shoes, or how to do carpenter work or plumbing, and the girl was expected to be proficient in millinery or dressmaking or housekeeping. But of late years few people learn to be proficient in anything.

My thought is turned to this subject when I consider that nearly 100 Austrian archdukes, duchesses and princes, in addition to thousands of others of the nobility, have, since the close of the war, been thrown out of their palaces, dispossessed of their wealth and are utterly unable to make a living. These highly bred and polished individuals have not considered the possibility of financial revolutions and of the instability of all earthly things. They have not sufficient skill to drive a nail into a plank or board, or to saw accurately, or to use a plane or drawshave, or to tune a piano, or to teach anything helpful. They are dependent upon others. They are an incumbrance to the activity of the world.

It is my opinion that every person should be proficient in something, so that should misfortune occur, which is always liable, there may be some recourse. You cannot steal a man's trade. He may lose his money, he may lose his friends, but he does not forget how to build, or how to use the tools with which he has labored.

I am told that the former nobility of Petrograd, Russia, are peddling papers in the streets in order to keep themselves from starving.

### Seventeen-Year Locusts

In response to an inquiry from O. C. Lawrence of Ridgewood, N. J., I will say that I have experienced several attacks from this seventeen-year locust. My experience is that in this locality they have not done much if any injury. The attack here years ago was very light. A large part of this country will not be attacked at all. Young succulent fruit trees should be watched in the spring. If the locusts are found on the branches they should be brushed off in a pan, the same as you would brush off potato bugs from potato vines. Where the locusts attack young trees they never kill them. They simply drill a slit through the bark where they lay their eggs and this slit does not heal over perfectly, causing the young tree not to have a smooth surface, as would be the case if there were no attack.

The new vigorous sappy growth of trees growing in nurseries will be more likely to be seriously affected than fruit trees planted in orchards. I do not think that fruit growers generally should feel alarmed but they should be cautioned to be on their guard, not so much on the large bearing trees as upon the young trees growing rapidly with sappy shoots easily punctured by the locusts.

### Prevention Against Fires

Are your houses and barns protected by fire insurance?

Perhaps you think they are insured when you have paid for the insurance, but such is not always the case.

After long years of experience I reach the conclusion that there are few fire insurance policies which are not defective in one way or another.

Here is an illustration: On one of my farms there was a house built for a tenant house which had all the appearance of being a tenant house. This building burned recently. The insurance company adjuster says that the building was not correctly named in the policy, and that though it was built for a tenant house it was actually used as a tool house and therefore the pol-

icy may be declared void. A building may have been erected for a church but abandoned for church purposes and used for the storage of automobiles. This church property it is held could not properly be designated as a church.

You should be certain that the rightful owner of the property is named in the insurance policy. If the property is owned by your wife and it appears in the policy that you are named as the owner, the policy will be void.

If you conclude to have additional insurance on your building, both policies must mention the fact that other insurance is allowed or both the policies will be void.

If you are making repairs on your buildings or additions thereto, you have killed your fire insurance policy for the time being unless you have secured permission to make the changes.

If you put up a new building within 60 feet of another building without permission of the insurance company, you destroy your policy of insurance in the old building.

If you put in heating facilities or electric lights, your policy is likely to be declared void unless you secure permission.

There are many other technicalities associated with fire insurance, which, as a friend remarks, is often assurance instead of insurance. When insurance is taken out an agent of the insurance company should inspect your property and see that it is properly described, but this is seldom done, especially in the country.

### The Strawberry Bed

I set out a Corsican strawberry bed two years ago. The first year I did not let the plants bear. Last summer they blossomed and began to bear such large fine berries. I had picked several quarts when some one told me I would have to take the runners all off. After that was done I did not get any more fruit. The vines were full of blossoms and berries and they all died.

I am thinking of spading up back of the lawn for strawberries. It is in heavy sod. Would they do well on it? Mrs. Elsie E. Gray, Pennsylvania.

Reply: You made a mistake in cutting off all the runners. It would have been better to let all the runners take root, but better still to allow a liberal portion, but not all, of the runners to take root, for it is the new plants made last year that produce the fruit this year. By the cutting away of all plants last year you had remaining simply the old parent plants, which are of little account to bear fruit.

I do not generally advise planting strawberries on newly plowed sod land, owing to the fact that the roots of the grass are liable to make trouble. But in spading up a small place for a strawberry bed, the sod can be inverted and buried so deeply with a spade that the grass will not interfere with the success of the strawberry plants, or the sod can be removed entirely from a small patch of ground. Then spading up deeply will make a good place for the strawberry plants to thrive. I would prefer the method of burying the sod deep as it is a fertilizer when rotted.

### How I Began

I am very glad that I had sense enough when I began fruit growing for a living to begin in a small way. This is the way everything should be started. It is nature's way in producing the oak from a small acorn. When I began I lacked experience in growing and selling fruits. I gained experience by planting in a small way. I bought simply a few hundred raspberry plants, strawberry, blackberry, grape and currants. I increased my plantings by propagating from my small plantations. It is an excellent plan for beginners to adopt, that is producing your own plants on your own grounds. By this

method you can take your choice of favorable days for planting after showers.

My orchard planting was also comparatively small. A friend of mine started fruit growing in the west by planting 100 acres of apricots. I advised him that he was making a mistake since he lacked experience, and asked if he knew how many laborers it would take to harvest the fruit of so large a planting. He had no conception of the fact that it would take a thousand people perhaps to pick this large acreage of perishable fruit. The result of this very large planting was partially a failure, although a large quantity of fruit was secured.

### Advice by C. A. Green

Since your home has been in the great and productive state of Ohio for many years, I advise you to remain in Ohio and not think of going to any westerly or southerly location. There is as good land in Ohio as you will find anywhere in the world. You are accustomed to the surroundings and the people of Ohio. You would find them entirely different in some parts of Virginia or Oklahoma. I am confident, other things being equal, that in the years to come, if not sooner, you will appreciate the advice I am giving you. Ohio is a fruit growing state. Many people who leave eastern states for new western states, or who go to Virginia, come back to their old homes in New York, Ohio or Pennsylvania well satisfied to stay there. They were surprised to find the conditions so radically different in their new abode that they were homesick, wife, children and all.

### The Banana Apple

Mr. Stephen K. Mast, of Everson, Pa., writes us that he often thinks of the many good things which have fruited on his place. He has received many fruit trees that have proved true to name. The Banana apple is one of his particular old friends. "It is all that you claim for it. I have sold fruit of the Banana apple trees at double the price of other varieties. My Orange quince trees from your nurseries grow here to perfection. I exhibited them at our fair. They sold at 50 cents a half peck. I picked 50 bushels of Gravenstein apples from one tree in the year 1917."

### Muck for Stables

It is profitable and desirable to use muck as a substitute in stables. The drier the muck the better, but if it cannot be secured dry it will dry out gradually when stored in the stable. It is surprising how much moisture dry or partially dry muck will absorb, and in absorbing the ammonia constantly arising from the stable floors, this application of muck will make the stables far more comfortable and wholesome for the cattle or horses. A load of dry muck used as above is worth more than a load of ordinary stable manure.

### McIntosh Red Apple

A subscriber to the AMERICAN FRUIT GROWER sends me an apple and asks for the correct name. I reply as follows:

The beautiful and high class apple which you so kindly send me is the McIntosh Red, one of the best apples in the world and one of the most salable. A friend tells me that he will pay any price I may ask for a few bushels of McIntosh apples. This is the way a great many feel about this delicious variety. The tree is hardy and bears abundantly. If you had an acre orchard of this variety in bearing it might yield you almost a fortune.

### Where Shall I Begin Farming

I was born and raised in the country and have spent a large part of my life in Ohio. I want a farm of my own. I am inclined to fruit growing. I am attracted to certain new sections of Oklahoma and to Virginia. Where do you advise me to start on a farm of my own? I have but small capital made up of savings.—Clyde E. Kopp.

### A Registering Car Thermometer

According to the New York Packer, T. F. Ryan, president and general manager of the Ryan Fruit Company, Seattle, Wash., has a patent for his invention of a registering car thermometer which will show the temperature in the car of perishables at all times from the beginning to the end of the journey. Clock-work mechanism operates rolls of white paper while a pen traces rise and fall of temperature as they are unwound.

## How to Pick Strawberries

By Earle W. Gage, New York

Few people pick strawberries properly, which is responsible for the heavy loss of good fruit before reaching the consumer. Picking is done best by the thumb and forefinger method, as shown in accompanying illustration, each berry being pinched off, with a stem about three-eighths to one



The Wrong Way to Pick Strawberries—Pull the Fruit Off Without Stem

half an inch in length, and placed in the carefully, not thrown, tossed, or dropped. Too many growers, in their endeavor to gain speed, pull the fruit off, and hold many berries in the hand at one time others pile up on full trays berries which must later be taken off and placed in the boxes. This means a heavy loss of fruit which cannot be delivered to market in first-class condition. Each row should be picked clean of all ripe fruit.

When the fruit is ripening rapidly the field should be picked each day, the pickers



The Proper Method of Picking Strawberries—Thumb and Forefinger

and packing being done during the cooler parts of the day, when possible. The variety and distance to market decides time at which the berries should be picked.

### CO-OPERATION

From the Community Miller

"Help one another," the snowflakes said as they huddled down in their fleecy bed. "One of us here would not be felt; One of us here would quickly melt; But I'll help you and you help me, And then, what a big white drift we'll

"Help one another," the maple spray said to his fellow leaves one day: "The sun would wither me here alone, Long enough ere the day is gone, But I'll help you, and you help me, And then, what a splendid shade there'll be."

"Help one another," the dewdrop cried, Sending another drop close to its side: "The warm south breeze would dry me away,

And I should be done ere noon today; But I'll help you, and you help me, And we'll make a brook run to the sea."

"Help one another," a grain of sand said to another grain just at hand: "The wind may carry me over the sea, And then, O! what will become of me? But come, my brother, give me your hand, We'll build a mountain and there we'll stand."

So the snowflakes grew to drifts, The grains of sand to mountains, The leaves became a pleasant shade, The dewdrops fed the fountains.

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for June, 1919

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**"YOUR big Goodyear Pneumatic Cord Truck Tires are the right kind of tires for this rough, mountainous country. Bar T Bar Ranch votes for them because they have saved us hauling time, have practically stopped truck repairs which were considerable on solid tires, have given twice as much mileage as the solids on rocky trails and have cut gasoline consumption almost in half. They actually enable us to carry feed to cattle on the range with our truck."**—Charles L. Chilsoy, of Bar T Bar Ranch, Payson, Arizona.

After using various methods of cross-country hauling, beginning with pack mules, this big Arizona ranch has adopted Goodyear Pneumatic Cord Truck Tires.

The Bar T Bar Ranch truck formerly had difficulty in navigating mire-bottomed washouts and steep mountain grades because it came shod with solid tires.

But since these were replaced with the tractive, cushioning Goodyear Cords, the truck has traveled at a

good rate over rough up-and-down trails, has forded streams with moderate effort and has even carried feed to cattle on the range.

Now the hauling time for the 127-mile round trip to Phoenix is 10 hours, whereas it formerly amounted to 13 hours on the solid tires.

Although doing considerably more hauling, the truck has not been laid up a single day for repairs since the smooth-going Goodyear Cords were applied.

When constantly racked on solids, a day of each week was required for overhauling.

On the pneumatics, a gallon of gasoline lasts 7 miles whereas, on the solid tires, this quantity was exhausted in  $3\frac{1}{2}$  to 4 miles.

It may be said, then, that Bar T Bar Ranch has discovered several of the reasons why the pioneer Goodyear Pneumatic Cord Truck Tires are being adopted broadly for ranch and farm transport.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

# GOOD YEAR

AKRON



Before

A typical view of West Michigan Pike, Van Buren County, Mich., before Tarvia was used.

# Tarvia

Preserves Roads  
Prevents Dust-

After

A view of the same section of the same road after Tarvia was used. Note smooth, dustless, easy-traction surface.

THE "Before" photograph above shows a section of West Michigan Pike, Van Buren County, Michigan, as it looked in the summer of 1916.

But the taxpayers of Van Buren County realized that such roads as this not only hampered the development of the county and made travel difficult, but that in the long run they cost the community more than good easy-traction roads.

The "After" picture shows the same road, photographed at exactly the same spot, after macadamizing and treating with "Tarvia-B."

West Michigan Pike is now a firm, mudless, dustless road, water-proof and automobile proof, over which full loads can be hauled to market with speed and economy.

And wisely, the taxpayers of Van Buren County, propose to keep this road new. Last year they gave it a second treatment with "Tarvia-B." Thus at very small expense they protected their original investment and now have a fine piece of highway that brings their markets at South Haven and Watervliet miles nearer to each other.

The satisfaction felt over the vast improvement effected by the use of Tarvia is officially expressed in the following letter from the engineer of the Van

Buren County Road Commissioners, Paw Paw, Michigan:

"The Van Buren County Road Commission has been using 'Tarvia-B' for some years to maintain about 20 miles of macadam road and it has given the greatest satisfaction. We have entirely got rid of dust and raveling and it is the opinion of many observers that the roads get better instead of worse.

"This year we had about two miles of macadam which was so bad that the State Highway Department advised covering it with gravel but instead we patched the holes with 'Tarvia-KP' (which by the way is something that is indispensable in our business) and treated the surface with 'Tarvia-B' and stone chips and today the road is in better shape than when new.

"We also have been trying out 'Tarvia-B' on a trunk line gravel road, the gravel testing about 75% stone. The results have been very good in spite of the heavy traffic. It produces a smooth, durable surface which will be better the second and third year than the first. We are now building a 30,000 gallon storage tank so that we can always have a supply on hand when we want it.

"Aside from treating the roads with 'Tarvia-B' there is no maintenance cost but a little attention to holes and drainage.

"Tarvia has solved our macadam road troubles for us.

Dana P. Smith,  
County Road Engineer."

The use of Tarvia will give any community or state all-the-year-round roads that are dustless in summer, mudless in spring and fall, frost-proof in winter, and that are easy to maintain at a low cost.

*Illustrated booklet describing the various Tarvia treatments free on request.*

New York Boston Cincinnati New Orleans Dallas Bangor Latrobe

Chicago St. Louis Pittsburgh Birmingham

Sak Lake City Johnstown Elizabeth Seattle Baltimore Buffalo Peoria Youngstown Lebanon Atlanta Toledo

Philadelphia Cleveland Detroit Kansas City Duluth Columbus Minneapolis Milwaukee Richmond Vancouver St. John, N.B.

THE BARRETT COMPANY, LIMITED: Montreal Toronto Sydney, N.S.

The **Barrett** Company



# Better Roads



## Building Gravel Roads

By H. J. Kuelling

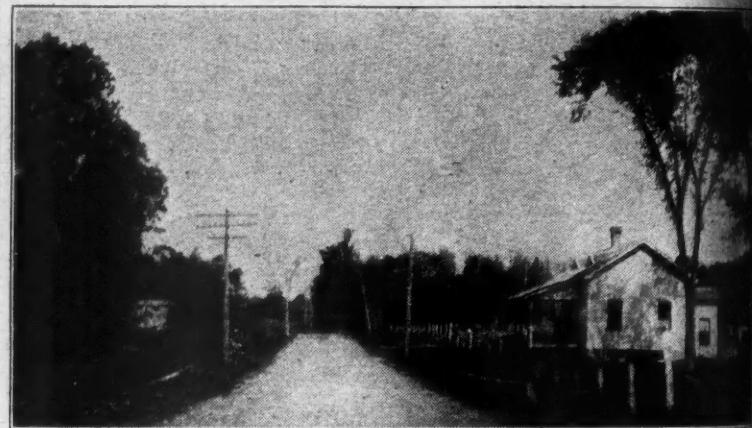
### Sand Gravels Can Be Used

OWING to the increasing cost of a well built and well maintained macadam road, the gravel road is becoming more popular with road builders as a type of highway for ordinary traffic in rural districts.

The difficulty and expense of caring for many miles of waterbound macadam has caused some districts to scarify them and cover them with a coating of gravel. Unless a road warrants expensive maintenance with oils or tars, this method is a very good one to follow as the gravel surface is susceptible to care by dragging or the use of a light road grader to keep it in shape. It is also easily repaired by the addition of more gravel even in small amounts, while the macadam is not. All that is necessary is to go out after a rain and note the low places in the gravel surface and later on deposit a small amount of gravel in these low places and allow traffic to compact it into place. Such a procedure is impossible

on clay roads as it gradually mixes with the clay and gives a much better wear surface than the clay would and will become cut up except during long dry spells. For light summer showers ample protection against skidding.

Naturally, however, the better the quality of the gravel used the better wearing results the road will give. That is, gravel with a large amount of stone will wear better and longer than one made all fine material. This stone, however, should not be too large in size as the larger stones will soon reach the surface and



A Well-Maintained Gravel Road

on a macadam road as it will not bind into place under traffic and if machinery is used the stone will be likely to be pulverized. In other words, to repair a macadam road the old surface must be loosened up and leveled up after which new material may be added.

The ideas of road makers as to what is the best gravel for road purposes has undergone somewhat of a change in recent years. Formerly it was thought that a gravel bank that would stand fairly vertical for a considerable length of time contained about the right mixture to make a good gravel road. That is, that it contained enough binding material to hold it in place.

It is often said that a bank of gravel that required picking down was the very best quality and would give the best results. This of course is more or less true at the present time, but actual construction has shown that many other gravels will also make a very good wearing surface. The gravel should of course contain a certain amount of binder, which is in most cases some form of clay occurring naturally in the bank. This should vary in amounts from 15 to 20 or even 25% to make a good road gravel. The tendency, however, is to use somewhat less road binder, thus requiring a longer time for the road to become compacted and look like a finished product. This may not seem like good practice, but the facts are that the slower a road is in compacting the more likely it is to stay compacted. This is true because it contains less binder material that is susceptible to being softened by rains. A road that is made with a small amount of binding material will not rut nearly as easily in rainy weather as one that compacted very quickly when built.

come objectionable to traffic. Personally the writer believes that for a wearing course the stone should not be larger than 1 inch in size.

No matter how a road is built gravel should not be placed in a layer thicker than about 6 inches at a time. If greater depth is desired it should be placed in courses, allowing the first course to be compacted before the second is placed. This compaction can be done by machinery or merely by the traffic using the highway. A good method to follow in the latter case is to construct the road commencing at the end toward the source of supply, thus hauling all the material over the gravel after it is placed. This hauling should be compelled to distribute it over the surface so as to compact it fairly uniformly.

### Use of Two Qualities of Gravel

Where a road is built in two courses the bottom course might be of a little poorer quality and a little larger size material, but even this should not be much larger than 2 inches. Well proportioned gravel for the bottom course would be about 60 to 75% between the 2-inch size and the 1/4-inch size and from 25 to 75% between the 2-inch size and the 1-inch size and from 65 to 85% of the material or that passing the quarter-inch screen should be other than dust.

For a top course gravel, as noted before, the larger size should not exceed 1 inch. There should be from 50 to 75% of the material between a 1-inch and a 1 1/2-inch size, from 25 to 75% between the 1-inch and 1 1/2-inch size and from 65 to 85% of the finer material should be other than dust.

The above two descriptions of gravel

Continued on page 30



## GMC Trucks— A Short-Cut to Market

This sturdy GMC connects the fruit farm of J. H. Graham, Woburn, Mass., direct with Boston markets, 18½ miles away. In three years of faithful work Graham knows that his GMC has paid and paid well.

Where one trip was formerly a big day's work, Graham now makes two and sometimes three, round trips daily. He drives this GMC into the fields and loads almost as soon as the berry pickers have filled up their baskets. In a few minutes he is on his way to Boston markets with ripe, fresh fruit. No spoilage—no loss from fruit that cannot be sold. His customers give him preference for they know his fruit is always garden fresh.

As a successful merchant, experience has taught Graham that the fruit grower profits only when his fruit is marketed—until then he is working at a risk. This means that fruit must be picked, packed and marketed with great speed and care.

Right here is where this reliable GMC has conclusively proved to Graham that it has added profits to his business. For by making two and three trips daily (where only one was made before) he has reduced loss from

spoilage to a minimum; he is able to ship almost as soon as the fruit is picked, and he also reaches a wider market—all of which piles up greater profits.

The same opportunity awaits every fruit grower. GMC trucks will add profits to your produce and fruit growing work. GMC trucks will cut down the distance to market, will eliminate waste and fruit loss, and will speed up your farm work in many ways. Above all, GMC trucks will give you a bigger bank balance at the end of the year.

There is just the right size GMC for your farm work—three-quarter-ton to five-ton capacity. Write Truck Headquarters today telling your needs and we will show you the correct capacity GMC for your farm.

*Let Your Next Truck Be a GMC*

**GENERAL MOTORS TRUCK COMPANY**

Pontiac, Michigan

*Branches and Distributors in Principal Cities*

(519)

# GMC TRUCKS

# A New Kerosene Engine

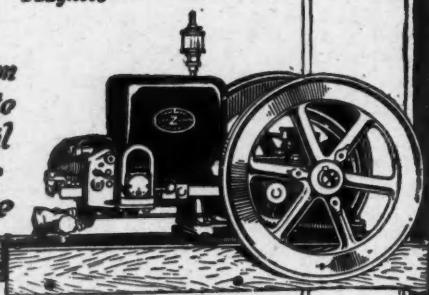
**There** is now no reason why every farmer in the U. S. should not be successfully using kerosene for engine fuel. This new  $1\frac{1}{2}$  H. P. size completes a line of

## KEROSENE

engines— $1\frac{1}{2}$  to 15 H. P.—all of which deliver engine performance even in excess of your expectations. The local dealer who displays the "Z" sign—will show you the "Z" and explain why it is the best engine "buy" for you at these prices— $1\frac{1}{2}$  H. P. \$61.00—3 H. P. \$100.00—6 H. P. \$179.00 F. O. B. Factory.

Throttling Governor—  
Built-in Oscillating  
Magneto

Also runs on  
Distillato  
Coal Oil  
Tops or  
Gasoline



Fairbanks, Morse & Co.  
MANUFACTURERS CHICAGO

# Sun Kissed Albemarle

Come to Albemarle County, Virginia, on the Eastern slope of the Blue Ridge Mountains, Piedmont Section. Good enough for Jefferson—Why not You? Home of the famous Winesap and Albemarle Pippin apples. Excellent schools, including the university of Virginia. Two trunk line Railroads.

You will like it in Albemarle.

WRITE FOR FREE BOOKLET

CHAMBER OF COMMERCE, Charlottesville, Va.

Kindly mention American Fruit Grower when answering advertisements

# Home Drying of Fruits and Vegetables

By Persis Smallwood, Illinois

DRYING or dehydrating, as it is more properly called, has been more or less neglected since canning came into general use and especially during the time when commercial canning placed standard products on the market at a very low price. A few years ago even the farmer's wife found it easier to stock her pantry with tinned goods from some large firm than to raise a large garden and cure the food, herself. For the city housewife there used to be no question between buying goods ready canned and buying them fresh and preparing them for winter—at least so far as relative price was concerned. The war, with its high priced tin and glass containers, high prices of foods, the scarcity of sugar and the general advent of the war garden, has changed the face of the problem. More than that, many of us who dried because we had to, have learned that we like our own preparations better than we ever liked what we

and which canned goods so frequently lack.

### Advantages of Dried Products

For the family there are many reasons for drying foods. The ease of storage is a very important item to the family in quarters. Great quantities of vegetables can be stored in light pasteboard boxes in paper bags. These packages are easy to handle and if they are tightly closed the contents is very indifferent to moisture or temperature changes outside. The boxes can be stored in the overhead very dry city flat where vegetables themselves lead such a short and miserable existence or in the freezing "spare closet" of the country home with equal assurance of a satisfactory product when the boxes are opened.

If it is properly prepared the product will not deteriorate in long periods of storage. At the close of the Boer War the British had on hand many thousands



Home Dryer Used at Illinois Training Farms

bought and we shall continue to dry even after war conditions have gone back to normal.

Why is this tremendous revival of interest in dried foods—showing itself by articles in every farm paper, government publications from half a dozen departments, in our clubs and our newspapers. Much of this interest is due to the war. We had to send to our army in France the greatest possible amount of food with the smallest weight and bulk and the smallest per cent of waste in transit. Government scientists went to work and the answer was dehydration. Drying reduces fresh foods to one half the bulk and from one fifth to one tenth the weight of the original. Thus two and a half pounds of dried tomatoes is equivalent to sixty pounds of canned.

During the war our attention was largely concerned with war orders for great quantities of dried material which of necessity had to be handled by great commercial drying establishments. Now that the war is over we find a steadily growing dried food market among the stay-at-homes. This is due to the well known H. C. L. which has driven us to new fields for a chance to save and to the research by the government departments which has led to standardization of dried products and thorough spreading of this information largely through governmental channels. Not the least item in this new popularity is the advent of relatively cheap, remarkably efficient family sized driers to replace the slow makeshift methods formerly in use. Groceries all over are selling dried foods and managers of the biggest hotels of the country are enthusiastic over them for their business. They find in properly dehydrated foods the same fresh taste of the raw vegetables

pounds of dried soup vegetables will use for it. When the last war broke out and found the British so far from home this supply, which had been packed in paraffined barrels, was found to be good as ever. So the soup was rushed to France and there kept up the morale against the Germans as faithfully as had against the Boers. Under present conditions of drying and storage, dried foods are practically indestructible. Vegetables are stored in a basement or cold storage or are canned there is about a certain percentage of loss but dried foods preserve all the valuable minerals and properties of the fresh material and will keep indefinitely.

We have learned within recent years that such disorders as scurvy, beriberi, epidemic or war dropsy are developed in people whose diet does not contain proper green foods. During the winter months many people develop vague with occasional skin rash which in some cases is a slight attack of scurvy. Grandmothers gave us a spring tonic of dock bitters and served dandelion greens on the table. They were better than they knew for these fresh vegetables especially those eaten raw like lettuce give us the food accessories that the diet lacks. White rats will die exclusively on a sterilized diet, for the process of sterilization removes these vital foods or vitamins. Some vitamins do not endure great amounts of heat but they go through drying perfectly therefore, during the winter months dried green food should be an essential which is not supplied with fresh vegetables.

### Food Can Be Saved

Perishable foods have to be refrigerated early and often.

for June, 1919

ation is very costly and is usually ended by a large loss in the crop also. United States Department of Agriculture advises us that one-half the total amount of fresh foods wastes in the home or on its way to the consumer. Practically then, we could dry half we produce and sell as much fresh as we now do. Dried foods can be cured near the place where they grow and sent by any sort of transportation from parcel post to market with perfect safety to the product and with great saving to the sender in decreased weight upon which he must pay shipping costs. There is also the very important point that dried product can be sent to market at any time during the year which must tremendously stabilize the market.

Many foods rapidly deteriorate after drying. Sweet corn and peas that are dried in the oven in the same day they are picked are excellent vegetables from the sort that is sold in the ordinary city markets. Commercial canners have learned this and are advertising for a fine grade of dried product that it is in the cans before the market. All the sugars are then prepared for the next winter's table.

The actual time spent to dry a given amount of any product is less than in preserving it by other methods. When vegetable or fruit is spread in the sun of the drier the worker is through with it for some time. Whereas if it is to be canned the period of hanging over a hot fire and arguing with a pressure canner rubbers that "blow out" is still ahead. The quantity that can be dried at one time depends upon the equipment in use. In nearly every case this amount exceeds what can be handled by canning. The two factors—the shortening of the time that must be given to a given amount and the increased quantity that can be handled at one time—make it possible for the country woman to get her work put away when the product is dried and to save a greater portion of the cost from waste and for the city woman to have her year's supply at the very crest of the market when the vegetable is cheapest.

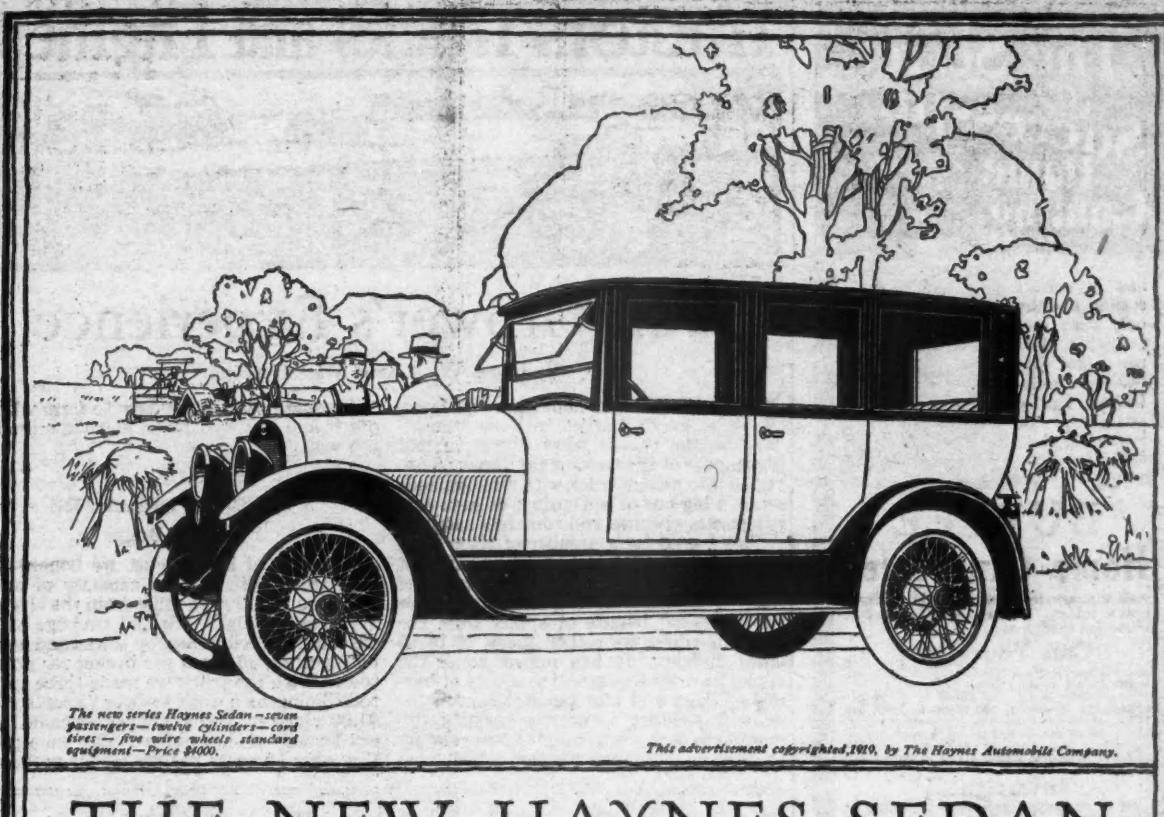
Thus we see that the family who, for lack of storage space, have canned a portion of their year's supply of dried foods, may with no further expenditure of time or space, store a year's supply of dried vegetables.

**A Wide Field Open**

So far we have been dealing with the use of dried foods necessary for the family unit but there is a wider field open. Many people will find it practical to dry greater quantities of food than their family requires as soon as they are assured of a market. Farm drying used to be done with such a variety of makeshift devices that the results were far from good. Outdoors drying could be done on sunny days and only on parts of the day. Racks over the stove do not dry evenly. Both methods expose the food to flies and dirt so it is with real enthusiasm that housewives are adopting indoor drying, planned by experts for the work, to speed up the drying both by increased capacity and by decreasing the time necessary for the process. There is further advantage, especially for products that are to be marketed, that all the operations are under control and therefore the product can be standardized.

In every farm there will be certain crops when the small fruits, berries and vegetables grown for home use, will probably be in excess of the family needs and not be enough to justify the farmer in exposing the perishable crop to a distant market. Yet if this man knew a way to get fourteen cents a quart for his berries, twenty dollars a bushel for his fall apples and his crops in proportion it would look well to market his excess. By this he can put the food in a permanent form and can market it whenever the market suits him. The prices quoted above those that obtained during the past year in Chicago, Dried berries sold for fifteen cents a pound which is equivalent to fourteen cents a quart for fresh. **Community Driers are Advisable**

The community can stimulate interest in enterprise if a few people there shall be done. Premiums at the State Fair or a prize offered by the Grange



## THE NEW HAYNES SEDAN AN ALL-SEASON, ALL-PURPOSE CAR

THE four factors of car character—beauty, strength, power and comfort—are exemplified in the new series Haynes Sedan. It is the result of the Haynes organization's twenty-six years of creating cars of known character.

Noted coach builders fashion the bodies after the ideals of Haynes originators. As is proper and in keeping with the atmosphere suggested by a closed car, the body styles are finished and fitted with that rich simplicity which reflects the good taste of the owner of such a car.

Upholstered in genuine mohair velvet, with the rare Mount Vernon pattern carried out in the silver fittings, with frosted rosette light-dome and quarter-lights, with silver trimmed vanity case and smoking case of solid mahogany—the new series Haynes all-season Sedan displays that quiet elegance which appeals to the fastidious and discriminating patrons.

There is a demand for the new series Haynes which is requiring our best efforts to meet. We urge you to make early reservation of the Haynes you select.

**The Haynes Automobile Company, Kokomo, Indiana, U.S.A.**

**NEW SERIES "LIGHT SIX"**

Open Cars	
Touring Car—7 Passenger	\$3450
Roadster—Four doors, 4 Passenger	2450
Closed Cars	
Coupe—4 Passenger	\$3100
Sedan—7 Passenger	3350
Limousine—7 Passengers	4000

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Open Cars	
Touring Car—7 Passenger	\$3550
Roadster—Four doors, 4 Passenger	3550
Closed Cars	
Coupe—4 Passenger	\$3800
Sedan—7 Passenger	4000

Wooden Wheels Standard Equipment  
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**1893—THE HAYNES IS AMERICA'S FIRST CAR—1919**

organized and encouraged by county agents and those often find it profitable to dispose of their output to reliable firms through one of their members delegated to do the work.

The National Food Administration and the United States Department of Agriculture have given impetus to drying with their many bulletins on food preservation which are usually available for free distribution. In many states, bulletins are available from the State Agricultural

which contain much valuable information. There is, therefore, a mass of literature at hand for anyone who does not feel able to cope with the drying problem without more definite instruction.

The plan is well worth considering whether you are moved by selfish interests alone—such as saving your own pocket-book and feeding your own family more wisely—or by that coupled with the more altruistic motives of conserving the nation's food supply and aiding the nation's

names. Mr. Hoover has recently said: "We are at the worst phase of the European famine that was inevitable after this world war." Therefore while we use all speed to demobilize our fighting men we must keep the ranks of American women right up to the war standard. German forehandlessness put twelve hundred commercial drying plants into operation during her years of preparation for the Great War. We may still hear her at one name of her genius for invention and discovery.

# A New Kerosene Engine

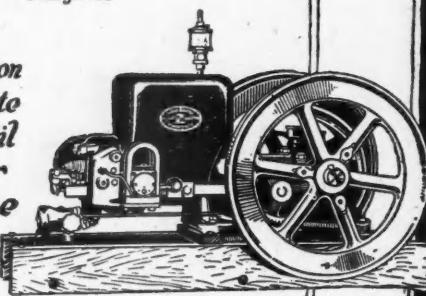
**There** is now no reason why every farmer in the U. S. should not be successfully using kerosene for engine fuel. This new 1½ H. P. size completes a line of

## KEROSENE

engines—1½ to 15 H. P.—all of which deliver engine performance even in excess of your expectations. The local dealer who displays the "Z" sign—will show you the "Z" and explain why it is the best engine "buy" for you at these prices—1½ H. P. \$61.00—3 H. P. \$100.00—6 H. P. \$179.00 F. O. B. Factory.

*Throttling Governor—  
Built-in Oscillating  
Magneto*

Also runs on  
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Tops or  
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and which canned goods so frequently lack.

### Advantages of Dried Products

For the family there are many reasons for drying foods. The ease of storage is a very important item to the family in close quarters. Great quantities of vegetables can be stored in light pasteboard boxes or in paper bags. These packages are easy to handle and if they are tightly closed the contents is very indifferent to moisture or temperature changes outside. Such boxes can be stored in the overheated, very dry city flat where vegetables themselves lead such a short and miserable existence or in the freezing "spare closet" of the country home with equal assurance of a satisfactory product when the boxes are opened.

If it is properly prepared the dried product will not deteriorate in long years of storage. At the close of the Boer war the British had on hand many thousand



Home Dryer Used at Illinois Training Farm

bought and we shall continue to dry even after war conditions have gone back to normal.

Why is this tremendous revival of interest in dried foods—showing itself by articles in every farm paper, government publications from half a dozen departments, in our clubs and our newspapers. Much of this interest is due to the war. We had to send to our army in France the greatest possible amount of food with the smallest weight and bulk and the smallest per cent of waste in transit. Government scientists went to work and the answer was dehydration. Drying reduces fresh foods to one half the bulk and from one fifth to one tenth the weight of the original. Thus two and a half pounds of dried tomatoes is equivalent to sixty pounds of canned.

During the war our attention was largely concerned with war orders for great quantities of dried material which of necessity had to be handled by great commercial drying establishments. Now that the war is over we find a steadily growing dried food market among the stay-at-homes. This is due to the well known H. C. L. which has driven us to new fields for a chance to save and to the research by the government departments which has led to standardization of dried products and thorough spreading of this information largely through governmental channels. Not the least item in this new popularity is the advent of relatively cheap, remarkably efficient family sized driers to replace the slow makeshift methods formerly in use. Groceries all over are selling dried foods and managers of the biggest hotels of the country are enthusiastic over them for their business. They find in properly dehydrated foods the same fresh taste of the green vegetables

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We have learned within recent years that such disorders as scurvy, beri-beri and epidemic or war dropsy are developed by people whose diet does not contain the proper green foods. During the winter months many people develop vague ills with occasional skin rash which in many cases is a slight attack of scurvy. Our grandmothers gave us a spring tonic of dock bitters and served dandelion greens on the table. They were better doctors than they knew for these fresh greens, especially those eaten raw like lettuce, give us the food accessories that the winter diet lacks. White rats will die if fed exclusively on a sterilized diet, for the process of sterilization removes these accessory foods or vitamines. Some vitamines will not endure great amounts of heat but they go through drying perfectly and therefore, during the winter months, dried green food should be on every table which is not supplied with fresh vegetables.

### Food Can Be Saved

Perishable foods have to be sent by special refrigerator cars and this trans-

portation attended. The Un culture productive fields of Theoretical raise and Dried fo where the of trans freight v and with the decre pay ship important sent to year wh and incre Many picking, eaten the different for sale. Commer one adv pease is team tha Food tha and start as possib served fo The ad amount preservin the vege trays of with it fo be canne stove and rubber. The qua time dep but in n exceeds v These tw time that of food a may be possib surplus p finest and crop from buy her y and the mark. and the best. Thus w of time only a po green food ture of tim of dried v So far supply of family un also. Ma dry great family re sured of a be done w appliances uniform: only on su each day. dry even food to fl thusiasm driers, pla that spee creased ca time nece the farthe ucts that conditio the produ On eve years wh vegetables duce far in still not be shipping t market. get fourte two dollar other crop worth wh drying he c form and price suits are those winter in for eighty le Commu Any co in such an decide it si local fairs is often all est. Comm

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Many foods rapidly deteriorate after picking. Sweet corn and peas that are eaten the same day they are picked are different vegetables from the sort that is for sale in the ordinary city markets. Commercial canners have learned this and one advertisement for a fine grade of peas is that it is in the cans before the team that hauled it has left the cannery. Food that is to be dried should be picked and started to dry as nearly simultaneously as possible. All the sugars are then preserved for the next winter's table.

The actual time spent to dry a given amount of any product is less than in preserving it by other methods. When the vegetable or fruit is spread in the trays of the drier the worker is through with it for some time. Whereas if it is to be canned the period of hanging over a hot stove and arguing with a pressure canner and rubbers that "blow out" is still ahead. The quantity that can be dried at one time depends upon the equipment in use but in nearly every case this amount exceeds what can be handled by canning. These two factors—the shortening of the time that must be given to a given amount of food and the increased quantity that may be handled at one time—make it possible for the country woman to get her surplus put away when the product is finest and to save a greater portion of the crop from waste and for the city woman to buy her year's supply at the very crest of the market when the vegetable is cheapest and best.

Thus we see that the family who, for lack of time or storage space, have canned only a portion of their year's supply of green foods, may with no further expenditure of time or space, store a year's supply of dried vegetables.

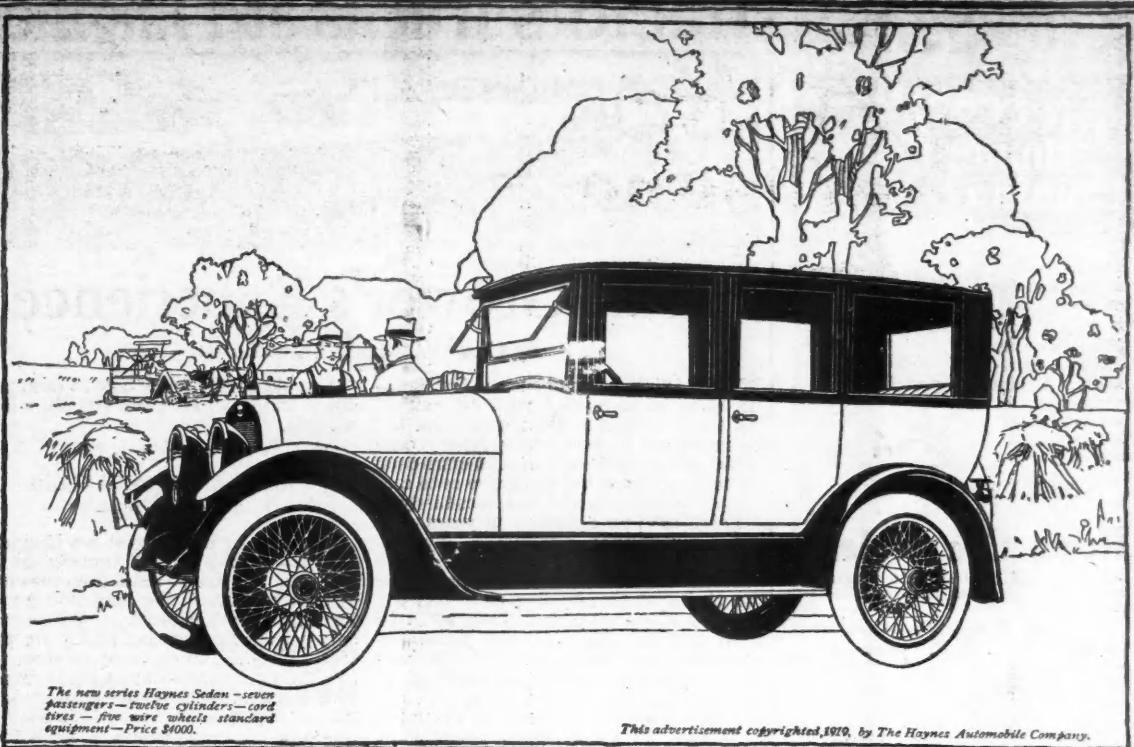
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On every farm there will be certain years when the small fruits, berries and vegetables grown for home use, will produce far in excess of the family needs and still not be enough to justify the farmer in shipping the perishable crop to a distant market. Yet if this man knew a way to get fourteen cents a quart for his berries, two dollars a bushel for his fall apples and other crops in proportion it would look worth while to market his excess. By drying he can put the food in a permanent form and can market it whenever the price suits him. The prices quoted above are those that obtained during the past winter in Chicago. Dried berries sold for eighty cents a pound which is equivalent to fourteen cents a quart for fresh.

#### Community Driers are Advisable

Any community can stimulate interest in such an enterprise if a few people there decide it shall be done. Premiums at the local fairs or a prize offered by the Grange is often all that is needed to arouse interest. Community drying clubs are being



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There is a demand for the new series Haynes which is requiring our best efforts to meet. We urge you to make early reservation of the Haynes you select.

The Haynes Automobile Company, Kokomo, Indiana, U.S.A.

#### NEW SERIES "LIGHT SIX"

##### Open Cars

Touring Car—7 Passenger	•	\$2485
Roadster—Four doors, 4 Passenger	•	2485
Closed Cars		
Coupe—4 Passenger	•	\$3100
Sedan—7 Passenger	•	3350
Limousine—7 Passenger	•	4000

Wooden Wheels Standard Equipment

A new catalog, beautifully illustrated, will be sent on request. Address Dept. 625

#### NEW SERIES "LIGHT TWELVE"

##### Open Cars

Touring Car—7 Passenger	•	\$3250
Roadster—Four doors, 4 Passenger	•	3250
Closed Cars		
Coupe—4 Passenger	•	\$3800
Sedan—7 Passenger	•	4000

Wire Wheels Standard Equipment

1893—THE HAYNES IS AMERICA'S FIRST CAR—1919

organized and encouraged by county agents and these often find it profitable to dispose of their output to reliable firms through one of their members delegated to do the work.

The National Food Administration and the United States Department of Agriculture have given impetus to drying with their many bulletins on food preservation which are usually available for free distribution. In many states, bulletins are available from the State Agricultural Experiment Station and also firms that handle driers have advertising booklets

which contain much valuable information. There is, therefore, a mass of literature at hand for anyone who does not feel able to cope with the drying problem without more definite instruction.

The plan is well worth considering whether you are moved by selfish interests alone—such as saving your own pocket-book and feeding your own family more wisely—or by that coupled with the more altruistic motives of conserving the nation's food supply and aiding the nation's transportation in this time of stress. Whatever the motive the results are the

same. Mr. Hoover has recently said: "We are at the worst phase of the European famine that was inevitable after this world war." Therefore while we use all speed to demobilize our fighting men we must keep the ranks of American women right up to the war standard. German forehandedness put twelve hundred commercial drying plants into operation during her years of preparation for the Great War. We may still beat her at one more of her games by making every American home a food preservation and conservation station.

## The Secret of Successful Home Canning



lies in perfect sealing, and the only sure way is with a Burpee Home Can Sealer. Satisfaction fully guaranteed or money refunded. No experience necessary. The

### BURPEE Home Can Sealer

seals sanitary tin cans air tight, without heat or solder. It makes you independent of market conditions.

**Can Your Own**  
and sell your surplus. Don't let your fruits and vegetables rot on the ground.

The Burpee Home Can Sealer is so simple and easy to operate it is so cheap no home can afford to be without one. The Burpee Home Can Sealer is used by the United States Department of Agriculture and Canning Clubs all over the country. A modern sealing device within reach of everyone.

#### Investigate!

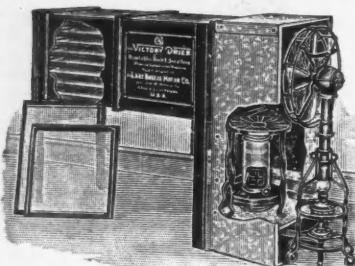
Let us explain how thousands are profiting by better canning. Judge for yourself. Send the coupon today. We will please and surprise you. Act at once.

**Burpee Can Sealer Co.**  
215A—West Huron Street, Chicago, Ill.

**BURPEE CAN SEALER CO.**  
215A—W. Huron Street, Chicago, Ill.  
Gentlemen:—Please send me free illustrated folder and full information on the Burpee Home Can Sealer.

Name.....  
Address.....

## VICTORY HOME FOOD DRIER



For vegetables, fruit and seed corn. It saves time, labor and money. Foods preserved in the Victory Drier "taste just like fresh picked." The process is simple, easy and sure and the foods thus preserved are delicious and wholesome. This is the best and the only dehydrator of the type in the world. Scientific, proved. Run by a kerosene fan. Ask for Catalog D2.

**LAKE BREEZE MOTOR**  
560A West Monroe St., CHICAGO

## Don't Wear a Truss



**BROOKS' APPLIANCE,** the modern scientific invention, the wonderful new discovery that relieves rupture, will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable. Cheap. Sent on trial to prove it. Protected by U. S. patents. Catalogue and measure blanks mailed free. Send name and address today.

C. E. BROOKS, 219C State Street, Marshall, Mich.

## Tractors Trucks and Engines



## Fruit Grower's Experience

By Chas. W. Mann, Massachusetts

I BELIEVE I was about the first farmer to go to market with an "auto" truck for that is what it was, an old touring car of the two lugger variety, converted into a small truck with an extra deck set on a big box of bed springs so as to carry ripe strawberries and tomatoes safely.

This I used for a number of years until in the fall of 1911, I purchased my first real truck, a 1½-ton, with dual tires in the rear. I used it first to pull home one or two thousand barrels of apples from the orchards where we picked them, 10 to 15 miles distant. It has pulled home the apples now for 8 years—thousands of barrels of them and also pulled them out to market, peddling in nearby markets, delivering to cars when shipping and running to Boston, 30 miles distant, when local

I would hardly know how to farm without it and if it hasn't run 100,000 miles it soon will.

### A TRUCK IN DELAWARE

By Caleb Boggs

The first of last August we bought an auto truck with a rated capacity of one-half ton. We live 45 miles from the city of Wilmington, Del. We had cabbage that we could not sell in nearby towns and were only getting 30 cents per basket for potatoes. With the truck we made three trips to Wilmington a week and got 75 cents and \$1.00 a basket for the cabbage we could not sell for any price at home. We were getting only 30 cents per basket for potatoes

### Comparative Cost of Hauling From Farms to Shipping Points

Reprinted from Monthly Crop Report Issued by U. S. Department of Agriculture

ITEM	DISTANCE	ROUND TRIPS PER DAY	LOAD			COST OF HAULING PER TON PER MILE		
			Corn	Wheat	Cotton	Corn	Wheat	Cotton
UNITED STATES:	Miles	Number	Bu.	Bu.	Bales	Cents	Cents	Cents
Motor Trucks, 1918.	11.3	3.4	58	84	6.6	15	15	18
Wagons, 1918. ....	9.0	1.2	39	56	3.6	33	30	48
Wagons, 1906. ....	9.7	1.2	39	55	3.4	19	19	27
NEW ENGLAND:								
Motor Trucks, 1918.	10.0	4.5	62	60	..	11	14	..
Wagons, 1918. ....	7.2	1.8	38	45	..	39	38	..
Wagons, 1906. ....	7.2	1.7	..	..	..	..	..	..
MIDDLE ATLANTIC:								
Motor Trucks, 1918.	12.2	3.4	69	78	..	14	14	..
Wagons, 1918. ....	7.6	1.6	39	47	..	39	38	..
Wagons, 1906. ....	6.5	1.7	41	48	..	24	26	..
SOUTH ATLANTIC:								
Motor Trucks, 1918.	9.8	4.0	45	57	6.0	19	18	20
Wagons, 1918. ....	8.4	1.4	29	36	3.5	41	39	48
Wagons, 1906. ....	9.9	1.2	35	42	3.1	28	24	27
NORTH CENTRAL, EAST								
Motor Trucks, 1918.	9.3	4.8	64	90	..	11	9	..
Wagons, 1918. ....	6.3	2.0	41	54	..	29	26	..
Wagons, 1906. ....	7.0	1.8	40	48	..	16	18	..
NORTH CENTRAL, WEST								
Motor Trucks, 1918.	10.1	3.8	54	84	..	18	14	..
Wagons, 1918. ....	7.9	1.5	42	57	..	33	29	..
Wagons, 1906. ....	8.7	1.4	39	52	..	17	16	..
SOUTH CENTRAL, EAST								
Motor Trucks, 1918.	12.9	3.2	58	86	7.6	12	10	13
Wagons, 1918. ....	10.4	1.0	26	38	3.2	45	36	52
Wagons, 1906. ....	11.1	1.0	29	37	3.0	24	23	.31
SOUTH CENTRAL, WEST								
Motor Trucks, 1918.	13.0	2.9	57	72	6.7	17	15	20
Wagons, 1918. ....	10.9	1.0	26	46	3.8	49	32	47
Wagons, 1906. ....	12.6	.9	29	38	3.8	22	21	26
ROCKY MOUNTAIN:								
Motor Trucks, 1918.	21.0	1.2	48	70	..	36	29	..
Wagons, 1918. ....	20.2	.4	46	66	..	52	42	..
Wagons, 1906. ....	16.8	.7	49	60	..	16	20	..
PACIFIC:								
Motor Trucks, 1918.	12.3	2.9	74	105	..	20	17	..
Wagons, 1918. ....	11.2	1.4	71	67	..	23	22	..
Wagons, 1906. ....	11.5	1.1	45	76	..	28	21	..

"The motor trucks generally in use by farmers are not the large trucks, but the small ones whose nominal capacity is usually 1 to 2 tons."

markets were dull. It made two trips daily to Boston for four weeks one season with apples making 120 miles daily without a break.

I built double deck body so regulated that I could safely carry one to fifty bushels ripe strawberries or tomatoes and one season sold 50,000 baskets of berries from it and 4,000 bushels of tomatoes.

I found that there seemed to be no danger from fire and so I built a hay rack for it and haul in most of the hay from the field as well as to take it to market, having handled 150 tons or so with it the past year. I use it in spraying the orchards and find it pushes the work in the busy season.

With four different bodies for all sorts of work we find very little use for horses on the road and keep only two where we formerly had four or more.

Barring accidents for which the truck was in no way to blame it has stood the wear finely and the motor still runs as smoothly as when new.

and got 65 cents in Wilmington, and later much better prices. At home tomatoes sold at 40 cents and in Wilmington at 85 cents to \$1.00. At home we could get nothing for apples and, if we shipped them, the returns were poor; people in Wilmington were glad to get them at \$1.50 a hamper. At home sweet corn sold at 10 cents per dozen and in Wilmington at 20 cents. This year we expect to take everything to Wilmington in our truck.

Blackberries are a large crop with us. Last year on shipments they would bring \$1.50 per crate. We hauled them by truck to Wilmington and sold them as fast as we could hand them out of the truck at \$3.20 or 10 cents per quart. We could not help but laugh at how we were beating the railroads and the commission men. We made 45 trips to Wilmington last year and we figure the round trip at 100 miles, that is 4,500 miles. Except for the first trip we never had five minutes' trouble with the car or tires. We use the best tires, which



## Save on Container Costs

Shipping in the Universal Package means a saving on container costs—and an increase in your net profits.

### The Universal Package

Approved by their many users because of the durable construction and ventilation properties. Proper ventilation, so necessary to fruits and produce, is assured in transit and storage.

A center post from bottom to top adds to the stability of the Universal Package. They may be stacked one upon the other in storage and transit with positive assurance of reaching their destination unharmed.

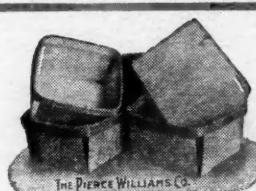
#### Send for Sample

A Sample Package will be sent to any address upon receipt of 25¢, stamps or coin. Send your name and address for our monthly bulletin, full of interesting data and information to growers and packers.

## Package Sales Corporation

104 E. Jefferson St.

South Bend, Ind.



Baskets for Apples, Peaches, Plums, Grapes, Tomatoes, Cucumbers, Beans, etc. Boxes and Crates for Berries, Cucumbers, Celery, Cauliflower, and vegetables of all kinds.

Catalogue mailed on request  
The Pierce-Williams Co. South Haven, Mich. Jonesboro, Ark.

## GERMOZONE GURES SICK CHICKENS KEEPS CHICKENS WELL

Preventive and curative of colds, roup, canker, swelled head, sore head, chicken pox, limber neck, sour crop, cholera, bowel trouble, etc. "The only remedy that did my little chicks any good in case of bowel trouble," says Mrs. Cora Wells, Abilene, Kan. "Our chickens were dying badly with cholera. Germozone entirely stopped it," writes W. B. Borberg, Golden, Colo. "I have used Germozone for the last year and think there is nothing to compare with it," says Mrs. M. F. Kelly, Salem, Neb. "Germozone does all you say and more," says W. A. Simmons, 1615 Sixteenth Ave., N. Birmingham, Ala. Good also for rabbits, birds and pet stock.

GERMOZONE is sold generally at drug and seed stores. Don't risk a substitute. We mail from Omaha postpaid in new 25c, 75c and \$1.50 sizes. Poultry books free.

GEO. H. LEE CO., Dept. 455 OMAHA, NEB.

## Anthony Fence

A perfectly balanced staple tie fence. Strong wire, thoroughly galvanized. Every rod of 5-inch stay fence has 33 stay wires. Special book sent free. Dealers Everywhere.

American Steel and Wire Company Chicago New York Company

It pays to Advertise in the Classified Columns of the American Fruit Grower

were good for these 4,500 miles and will make several trips yet.

Our truck is supposed to carry one-half ton, but many times we had on 1,600 pounds. We would use five gallons of gasoline per trip. We do not think we want a big truck. We would rather have two small trucks. The big heavy trucks are not so easy riding and berries should be carried carefully, so that they will not be out of place when you reach the market. The same is true of tomatoes and eggs. When we get to Wilmington and open a crate of berries, they look just as they did when we left home. The larger trucks consume much gasoline and oil and the solid tires cost a great deal and will not last any longer than a good pneumatic tire. The big trucks are also too slow for us. We go to market with our load in two hours and a half and we always make the home trip in 1½ or 1¾ hours. We pass the big trucks on the way to market and they get out of our way coming home. Frequently we stop at the wholesale grocery and bring back a load of freight for our merchants. This pays our gas bill for the trip. We expect to get another truck this year and market everything we raise by means of that truck. We averaged \$35.00 per trip from the first of August until December 20th, our total sales amounting to \$1,575.

#### AN AGE OF TRACTORS

We are approaching a new era in soil cultivation brought about by the gasoline tractor or motor, which I believe will largely take the place of horses in many kinds of farm work. New factories are planned in various parts of this country for the manufacture of these farm tractors. The objections raised against the tractor are that it cannot work in rocky ground and that eastern farms are too small for the successful work of tractors. Tractors will work in soil that contains rocks buried beneath the surface, and the seriousness of small fields is not so great an objection as is claimed.

#### THE TRACTOR FOR THE YOUNG ORCHARD

By Ruby Anna York, Kansas

I see by the pages of the AMERICAN FRUIT GROWER, that your magazine is an enthusiastic booster for the farm tractor, so am I. I always was a friend to the farm tractor and the other day I saw something that caused my admiration for tractors to grow stronger, especially for the fruit grower's use.

I was watching a man plow a small young orchard with a team of horses, and while he stopped for a minute one horse bit the top out of a young tree, ruining the tree's future growth for always. Again as he turned at the end of the row the horses bit small limbs off a young plum tree. Now if a tractor had been used no damage would have been done to the orchard. I think the tractor is the implement for the fruit grower.

When I buy a farm I am going to own a tractor. I am elated over the farm tractor. I live in town near the Santa Fe depot, and during the last two years car-load after carload of tractors are unloaded at the depot and they are a source of entertainment to me as well as all who live near.

This week I watched the unloading of five tractors. A young ex-soldier "drove" them off the flat car onto the depot platform and to the warehouse. A skillful little engineer he was; careful, thoughtful, skillful, quick and active. A boy with a bright future.

There is nothing a real farmer boy would appreciate more than nice new tractor. Give the farm boy (and the girl too, if she wants one) a tractor, it gives him a steady hand, quick thought, it makes him careful, all around a tractor is good for a boy.

#### WEIGHT OF AVERAGE LOAD

An interesting investigation was made by the Traffic Motor Truck Corp. before they determined to concentrate their manufacture upon a 4000-pound truck. They studied the hauling situation throughout America very thoroughly and discovered that of all loads carried by motor trucks in a year's time 80 per cent were of less than 4,000 pounds. This fact, significant as it is to anyone with a hauling problem, is of vital significance to the farmer and the fruit grower. In these cases the demand is more evidently for lighter and more frequent hauls and the need for a truck adapted to such work more apparent.

# You Will Value This Tested Reliability

WHEN you select a motor truck for your fruit farm, consider the record that Republic Trucks have made in every field of truck haulage.

Republic Trucks are at work in 27 different countries performing faithfully under every road, load and climatic condition imaginable.

More than 50,000 Republic Trucks are now in use, probably more than of any other truck in the world.

Thousands of Republic Trucks are on use on progressive farms. They are paying their way and earning profits just as they are in every other kind of hauling because they are built to meet even the most strenuous demands of roughest farm work.

Republic Trucks are as simple as they are efficient. They are easy riding and easy to care for. To farmers in every state Republics have proven dependable farm equipment.

The Republic 8-way Convertible Farm body will win your favor instantly for it can be changed to carry any kind of load.

There are models of all practical capacities to meet the requirements of every fruit farm.

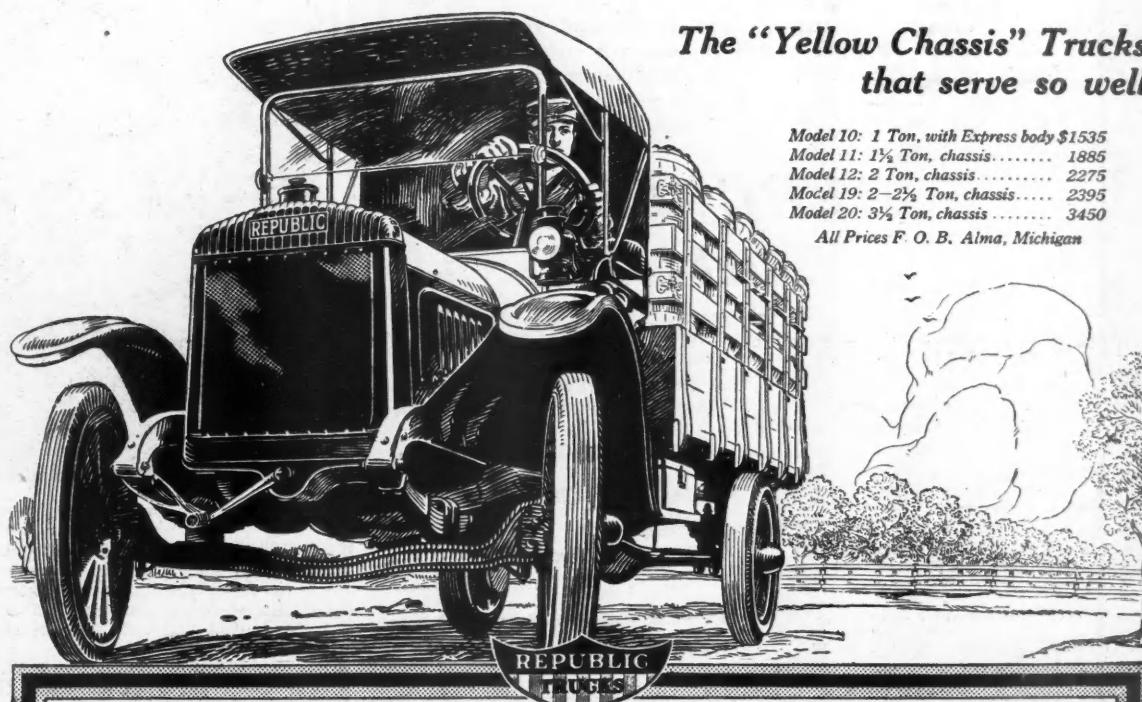
See the nearest Republic dealer or write us for full information.

REPUBLIC MOTOR TRUCK CO., INC.  
Alma, Michigan.

#### The "Yellow Chassis" Trucks that serve so well

Model 10: 1 Ton, with Express body \$1535  
Model 11: 1½ Ton, chassis ..... 1885  
Model 12: 2 Ton, chassis ..... 2275  
Model 19: 2-2½ Ton, chassis ..... 2395  
Model 20: 3½ Ton, chassis ..... 3450

All Prices F. O. B. Alma, Michigan



# REPUBLIC TRUCKS

The Torbenzen Internal Gear Drive—used in all Republic Trucks delivers 92% of the motor power to the wheels. We know of no other type of drive that delivers as much. The POWRLOK prevents stalling when one wheel loses traction.

Built by the Largest Manufacturers of Motor Trucks in the World



#### "Best Weed Killer Ever Used"

Put away that back-breaking hoe. You can grow a better garden and do the work ten times as fast, with a BARKER—8 blades revolving against stationary knife (like a lawn mower) destroy the weeds and at the same time break up the clods and crust into a level, moisture-retaining mulch. A boy can operate it. Gets close to plants. Guards protect leaves. Cuts runners. Has easily attached shovels, making three garden tools in one.

FREE Illustrated Book and Factory-to-User Offer, valuable information on gardening—all free  
Barker Mfg. Co., Dept. 25, David City, Neb.

#### All Steel Slaw and Vegetable Cutter

Made of all steel 14½ x 13 in., 5 knives with handles. Triple Plated with Block Tin. Guaranteed to remain sharp 10 years. ½ min to clean. Perfectly sanitary, used for slicing Cabbage, Potatoes, Onions, Beets, Carrots, Corn on Cob, Cucumbers, Radishes, Turnips, Green Tomatoes, Pineapples, Coconuts, Lemons, Apples, etc.

ALL STEEL KRAUT CUTTER  
Size 8 x 22 in. ½ in. Rod, 6 knives. Removable Metal Box. Price \$3.25. Postpaid.  
E. G. Meyer, 2525 Orland Ave. Westwood Cincinnati, O.



**BUSH CAR—FREE**  
This Five Passenger 37 H. P. car, 116 in. whl. base. All bearings Timken. Deice Ign.—Dyment Stg. and Ltg. Write at once for my great Free Offer and 48-page catalog. Agents wanted for all and domestic markets. Order now. Pay later. Big money. Cars guaranteed or money back. 1919 cars ready.  
**BUSH** MOTOR CO., Bush Temple, Chicago, Illinois

Only \$10 DOWN  
A YEAR  
TO PAY

—And 30 Days'  
FREE Trial  
Smashing Summer Offer!  
Get your Kirstin now  
on smashing summer terms and prices. Try it  
30 days free. If satisfied, keep puller and take one year to pay. If not pleased, return at our expense. Money back.

Kirstin One-Man Stamp Puller  
Lasts longer. Greater power, speed and strength.  
Lasts forever! A few pounds' pull on handle exerts tons on stamp. One man alone handles biggest, toughest stamps—quick, easy, cheap! Free Book gives full details—Write today.  
A. J. Kirstin Co., 2907 1st St., Escanaba, Mich.

KINDLY MENTION AMERICAN FRUIT GROWER WHEN WRITING TO ADVERTISERS



## "Give Them a Chance"

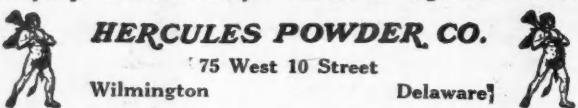
"Blast the holes that you plant 'em in. That's the way to start your trees right. They'll show you in a hurry what they think of it by the way they grow. You see—blasting the holes loosens the earth so that their roots have a chance to spread. How would you like to work tied up in a straight jacket? Well—that's about the way a tree feels with its roots all cramped into a spade-dug hole."

## HERCULES DYNAMITE

is what you need to help you on your farm and in your orchard. It will lighten the heavy work and make it possible for you to accomplish a great deal more in a day than you ever could have by using the old fashioned hand methods.

Send today for our illustrated book, "Progressive Cultivation", and learn from its pages how you can use Hercules Dynamite to help you plant your trees, dig your ditches, and clear your land.

The coupon printed below is for your convenience. Sign it and send it in now.



75 West 10 Street

Wilmington

Delaware

Hercules Powder Company,

75 West 10 Street, Wilmington, Delaware

Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

**Your Attention, Mr. Fruit Grower**

**The Midget Whale Power Sprayer With Air-Cooled Engine**

and Automatic Starter efficient as any Power Sprayer on the market regardless of price, is adapted for Fruit and Truck Growers. Write for prices and full descriptions

**THE CRESTLINE MFG. CO.**  
Dept. K, CRESTLINE, OHIO

**1920 MODEL**

**OTTAWA KEROSENE ENGINES**

**Start Easy** in any weather. Full steady. Complete overhead. All sizes and styles. 1/2 H.P. to 2 H.P., 90 Days Trial. Money Back Guarantee. Prompt shipment.

**Low Prices** Write for present money saving prices and Free Book, telling all you want to know about engines. Write today.

**OTTAWA MFG. CO.** OTTAWA, KAN.

\*Kindly Mention American Fruit Grower when writing to Advertisers

**HARRISON'S NURSERIE**  
Fruit Trees Budded from Bearing Orchards. Peach, apple, pear, plum, cherry, quince, grape-vines, strawberry plants, raspberries, blackberries, evergreens and shade trees. Catalog free. Box 52 Berlin, Md.

**ORNAMENTAL FENCE**

8 Cents per Foot and up. Costs less than wood. 50 designs. All steel. For Lawns, Churches and Cemetery. Write for free Catalog and Special Prices. Kokomo Fence Machine Co. 457 North St., Kokomo, Ind.

## California Lemons From Orchard to Market

By I. J. Condit

THE LEMON is to California what the grapefruit is to Florida. The last commercial lemon orchard in Florida was budded over to grapefruit in 1911, although lemon trees are still common in home orchards. Records from Florida show that half of the new citrus plantings are to grapefruit. Records in California show that the non-bearing acreage of lemons is substantially seventy-five per cent as great as the bearing acreage and much of the latter represents orchards which have not reached the full bearing stage so that their output will increase rapidly. To be more exact, the bearing lemon acreage is reported as 22,651 acres and the non-bearing as 16,799 acres. These figures, however, mean nothing unless we know something about the yield, the imports, and the consumption. The normal annual crop of California lemons is 8,000 carloads; the normal imports of lemons into the United States total 6,000 carloads. When the present non-bearing acreage of lemons comes into full bearing California alone will produce more lemons than the United States and Canada now consume. Does this fact result in a feeling of pessimism among

times as often as the average well person who uses one lemon every 28 days. This simply shows the possible extension of lemon consumption by drawing the attention of the public to the wide and varied uses to which the lemon can be put, particularly those of a culinary, toilet, and medicinal nature so as to create a greater year-around demand which will not be dependent upon the weather. As an indication of the results to be secured from publicity one of the exchange's lemon advertisements alone resulted in nearly 18,000 requests for the recipe book, which doubled the best record for any of the orange advertisements. The consumption of lemons was slowly decreasing until the exchange began its lemon advertising a few years ago.

### Foreign Lemon Competition

California lemons must compete in the market with those from Italy including Sicily. About 85% of the foreign lemons come through the port of New York in cargoes of a few thousand boxes up to 50,000 boxes. It is interesting to note the following tabular comparison of the yearly average price on foreign lemons sold in



California Fruit Growers have Adopted Trucks as an Insurance Against Freight Congestion

California lemon growers? By no means. While in some quarters there is a little anxiety over the future the general feeling is that increased consumption and wider distribution will take care of the larger supply of fruit.

The following tabulation published by the California Fruit Growers' Exchange last year shows the total consumption of lemons in the United States and Canada with the quantity and percentage from California and abroad since 1900:

Sept. 1-Aug. 31 Imports	Cal. Total	Cal. %
1900-01 . . . . .	5,633	
1901-02 . . . . .	6,148	
1902-03 . . . . .	5,362	2,134 7,496 28.5
1903-04 . . . . .	6,007	2,340 8,347 28.0
1904-05 . . . . .	4,640	3,361 8,001 42.0
1905-06 . . . . .	5,607	3,218 8,825 35.5
1906-07 . . . . .	6,463	3,058 9,521 32.1
1907-08 . . . . .	5,934	4,054 9,988 40.6
1908-09 . . . . .	5,162	5,587 10,750 52.0
1909-10 . . . . .	5,425	4,200 9,625 43.6
1910-11 . . . . .	5,131	5,118 10,249 54.4
1911-12 . . . . .	4,615	5,622 10,237 55.0
1912-13 . . . . .	6,658	2,775 9,414 29.5
1913-14 . . . . .	8,094	2,856 10,951 26.1
1914-15 . . . . .	4,755	6,445 11,198 57.6
1915-16 . . . . .	4,348	7,209 11,757 61.3
1916-17 . . . . .	3,127	8,155 11,282 72.3
1917-18 to June 1 . . . . .	3,691	1,959 5,650 65.3
Total . . . . .		
Lemon . . . . .		
Supply . . . . .		
Population . . . . .		
Increase in last 10 yrs. . . . .	18%	21% 3%
Increase in last 6 yrs. . . . .	10%	12% 2%
Increase in last 5 yrs. . . . .	10%	10% 0%

It is interesting to note that the percentage of lemons furnished by California has risen from 28.5 in 1902-03 to 72.3 in 1916-17. Whether this high percentage can be maintained under normal conditions remains to be seen. The exchange believes it can and the advertising department is making special efforts to emphasize the fact that the California lemon is a staple product, picked, shipped and consumed every day in the year.

It has recently been shown that the average hospital patient consumes a lemon every 6.07 days or more than 4½

New York and the yearly average f. o. b. California on all lemons shipped through the Exchange:

Foreigns	Californias
New York	F.O.B. Cal.
1909-10 . . . . .	2.90 3.41
1910-11 . . . . .	3.55 3.01
1911-12 . . . . .	2.88 2.86
1912-13 . . . . .	4.38 4.99
1913-14 . . . . .	3.11 3.62
1914-15 . . . . .	2.02 1.60
1915-16 . . . . .	2.29 3.11
1916-17 . . . . .	3.28 3.06
1917-18 to June 1 . . . . .	3.79 4.74

The low average price during the year 1914-15 due to unusually cool weather, heavy production, and the beginning of the war, showed a loss of 35¢ per box from the cost of production, packing and selling, based upon a cost investigation made in 1910. These cost records compiled by the Citrus Protective League show some very important facts when compared to present figures.

### Cost of Production

"On lemons, records were collected from 143 groves, comprising 3,658.4 acres. The average yearly cost for labor per acre was \$92.51. This includes plowing and cultivating, pruning, irrigation, fumigation, fumigation labor and materials where not segregated, spraying, spreading fertilizer, other tree care, superintending, administration and accounts not segregated. The average yearly cost for materials per acre was \$108.71. This included chemical fertilizer, barnyard manure, water, fumigation, forage and grain, taxes, maintenance and repairs, frost protection, insurance chargeable to the grove and incidentals, usually including cover crop seed. The total cost per acre was \$197.15. This did not include depreciation on the groves or equipment or interest on the investment.

The same investigation showed that the average yield per acre on 700 groves for five years, 1906-7 to 1910-11, was 196.2 packed boxes per acre, making the

average cost of production on the tree about \$1.00 per packed box.

"The average cost of picking, hauling and packing and loading of 1,391,711 boxes of lemons in 1910-1911 was \$0.888 per packed box. The average selling expense was \$.07 per box, making the total cost \$1.958 per packed box.

"To give an idea of the increased costs of caring for groves, we have obtained the costs for the last fiscal year from seventeen representative properties in various districts, comprising 323 1/4 acres, which were included in the 1910 investigation. The average cost per acre of those particular groves for 1910 and for the year ending in 1917 (mostly ending August 31st) were as follows:

	Labor	Material	Total
1910	\$ 76.31	\$124.89	\$201.20
1917	103.97	155.28	259.25

"This shows an increase of 28.8 per cent. Labor and materials costs have continued to advance and costs for this season will be much higher.

"It should be noted that these figures do not include depreciation on the groves, buildings, stock, machinery, tools, irrigation plant, frost fighting equipment or other equipment, or interest on the investment.

"We have secured the figures on the cost of picking, hauling and packing from seventeen concerns, handling 1,231,816 boxes, for the season 1916-17. A comparison with the costs of twenty-three concerns handling 1,391,711 boxes in 1910-11 follows:

Picking	Hauling	Packing	Total
1910-11	\$ .253	\$ .039	\$ .596
1916-17	.27771	.044	.62747

"These costs are for the year ending August 31, 1917, and will be much heavier this season."

#### Profits and Figures

Although such large collections of figures have considerable indicative value, they should not be taken too seriously. These and other figures seem to show that the average box of oranges for the five years preceding 1913 returned a net profit of 15 cents to the grower, while the average box of lemons produced during the same period returned a loss of about 20 cents. Good lemon orchards have, however, commonly paid higher profits than orange orchards and they usually bring a better price per acre when sold. This simply means that there have been in the past a larger proportion of failures with lemons than with oranges. Figures showing the average production of almost any one crop are discouragingly low. The advice given to students by the Dean of the California College of Agriculture is certainly sound: "If you cannot do better than the average in farming, you should get into some other business."

#### Method of Producing Trees

Few people outside of California, I believe, understand the conditions under which lemons are grown and packed. Some may wonder why a citrus tree is higher in price than most deciduous trees. Apple and peach trees can be produced in two years from the seed. The following shows the ordinary life history of a lemon tree from seed to sale of the nursery tree:

1919—Seed planted in April in seed beds usually under lath shelter; seedlings grow one year in seed bed.

1920—Seedlings transplanted to nursery rows in April; grow for one year or eighteen months.

1921—Seedlings mostly budded in October, the buds remaining dormant until spring.

1922—Buds start to grow in March or April; each growing bud staked and tied every three inches.

1923—One-year-old budded tree ready for transplanting.

1924—Two-year-old budded tree ready for planting.

The budded tree is therefore four or more, commonly five years old from the time of planting the seed.

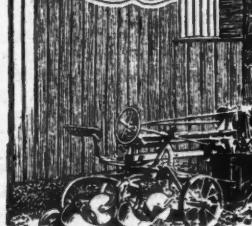
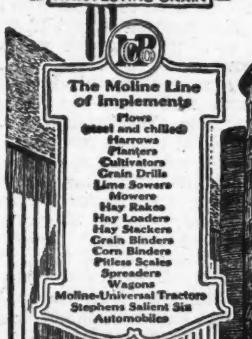
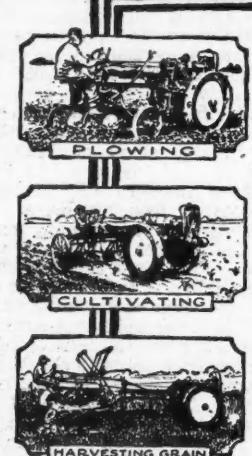
Lemon growers are keenly alive to the value of bud selection. Lemon trees propagated from carefully selected buds are precocious and bear considerable fruit the third and fourth years in the orchard. Many orchards have a large proportion of trees of the so-called "shade tree" type, which are beautiful trees to look at but absolutely unprofitable from a fruiting standpoint. Since the grower desires trees for fruit and not for shade and ornament such trees are being budded over as rapidly as possible.

# Moline System of Power Farming



## MOLINE UNIVERSAL TRACTOR

By using the Moline-Universal Tractor and Moline Tractor implements, you can farm more land, better, easier and at less expense than you ever did before. Farmers in all parts of the country are now making more money through the use of the Moline-Universal Tractor and Moline Tractor Implements. Unsolicited testimony from owners is the best proof of satisfactory performance. Read the following expressions from Moline owners:



#### Picking and Packing

Under favorable climatic conditions the lemon tree never rests. Buds, blossoms, green and ripe fruit may be seen throughout the year. Unfortunately the heaviest pickings do not always come during the season of greatest demand. The handling of the fruit therefore depends upon the market. Lemons of the right size are picked perfectly green since at that stage the acid content is most satisfactory. Those picked during the late winter and early spring are placed in special store-rooms and held until warmer weather creates a demand. Those picked during the summer and fall are placed in a warm, humid atmosphere and colored up rapidly so that the fruit can be packed and rushed off to market. A recent estimate showed that the lemon storage houses of Southern California contained in April over 2,300 carloads of fruit awaiting shipment. Lemons may be held in storage for six, eight or even twelve months although the shrinkage due to loss of mois-

ture considerably reduces the weight.

A lemon or an orange properly handled is practically proof against decay. When scratched or bruised, however, decay almost invariably follows. Pickers and packers therefore wear soft cotton gloves and are constantly cautioned to handle the fruits as though they were eggs. Dealers and consumers will profit by keeping this rule in mind. The lemons are graded in the packing house into three grades as a rule, fancy, choice and standard although occasionally extra fancy and extra choice grades are made. Fruits of the same size are then packed in boxes 11x14 1/2x27 inches outside measurements, each containing from 180 to 540 fruits. Southern markets prefer the smaller sizes.

On account of the fact that the California lemon is picked, shipped, and consumed every day in the year and since the fruit may be had in practically every American city and village throughout the year, it certainly ranks very high among our less perishable fruits.

"It has spoiled me because I do not care about driving horses any more." S. R. Mober, Westphalia, Kans.

"A big time saver and makes hard work a pleasure." Millard Bell, Rockville, Md.

"It has accomplished just 100 per cent more than I expected it. As a hill climber there is no equal." O. H. Barkledge, Washington, Mo.

"I can't work horses any more as I do my work so much easier with the Moline-Universal." Henry Shatz, Sheridan, Ore.

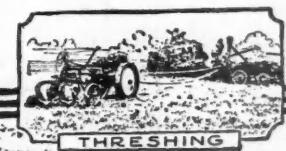
"During my ownership of the Moline-Universal Tractor my farm work has been made more pleasant and profitable." S. M. Pinckney, College Farm, Orangeburg, S. C.

"My wife and I have farmed this year by ourselves—something we never did before." H. E. Hartzell, New Weston, Ohio.

"It has saved me \$600 in labor this season." Ira Brinkman, Shades, Ind.

If space would permit we could fill up this entire paper with letters from satisfied owners of Moline-Universal Tractors. Write for full information and large list of farmers who are making more money with less hard work by farming the Moline way.

## Moline Plow Co., Moline, Ill. "Moline Service Satisfies"



## The Jefferson RICHMOND, VA.

Most Magnificent Hotel  
in the South

### EUROPEAN PLAN

400 Rooms 300 Baths

Rooms Single and En Suite, With and Without Private Bath. Turkish and Roman Baths. Spacious Sample Rooms. Large Convention Hall

RATES—\$1.50 PER DAY AND UP

O. F. WEISIGER, Manager

# CIDER

## For that "thirsty" feeling!

There's nothing like a sparkling glass of cider! With a RED CROSS CIDER MILL you can make sweet cider whenever you have a few apples to spare. Easy to operate. Pays for itself in short time by saving all waste fruit and you can make good profits selling cider, too. Will crush apples, grapes, oranges, pears, etc. (Big market for fruit juices after July 1.)

**WILL  
NOT  
CLOG**

RED CROSS CIDER MILLS are made in four sizes, each fully guaranteed. Self-aligning bearings which positively prevent binding or clogging of rollers, are an exclusive feature of all RED CROSS MILLS. Handle any size apples without halving or quartering. Get all the juice. Make six to twelve barrels of cider per day. Has maple frame, finished in natural wood color, coated with clear varnish. Steel press screw with accurately cut threads, operating through heavy cast-iron cross head. Double rollers of heavy cast-iron, hollow type, will not bind or clog. Fitted with heavy pulley, for three inch belt, if desired to operate by power.



### Red Cross Senior Press

This size press usually operated by hand and the heavy pulley acts as balance wheel. Two tubs, large size, made of maple slats, riveted to inside of iron bands. Rivet heads flush. Do not interfere with action of plunger. Strongly made; handsomely finished; warranted to give perfect satisfaction. Thousands in use.

**FREE CIDER BOOK** Contains recipes for all kinds of crushed fruit drinks; many practical ideas for novel refreshing beverages; tells how to keep cider sweet; how to make better cider vinegar; how to use cider in cooking; how to use apple pomace as silage for dairy cows, etc., etc. Contains pictures, descriptions, and prices of full line of RED CROSS CIDER MILLS. Send your name today and get a copy of this interesting book FREE.

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If you will keep your motor free from carbon. That knocking in your engine—the difficulty you have climbing hills—poor pick-up—lack of power—noisy motor—pre-ignition—in fact 80% of your engine trouble is caused by carbon. Clean it out with

## JOHNSON'S CARBON REMOVER

and your engine will run like it did the first 500 miles—quietly and full of "pep". And your gasoline consumption will drop 12% to 25%.

### You Can Do It Yourself

For 65c—five minutes' time—no labor—and without laying up the car, you, yourself, can remove all carbon deposits. No mechanical experience required.

If you will use Johnson's Carbon Remover every 500 miles, giving carbon no chance to accumulate, you will automatically eliminate most valve trouble and your engine will always be clean and sweet.

### For Tractors—Gas Engines

Johnson's Carbon Remover will also remove carbon from the motor of your tractor, giving it greater power and enabling it to work more satisfactorily and economically. It will make your tractor 100% efficient.



Johnson's Carbon Remover is recommended by many car manufacturers including the Packard and Studebaker Companies. Handled by all representative dealers and jobbers. Insist upon yours supplying you. For further information write

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## TALKS ON NUT GROWING

By  
**Dr. W. C. Deming**



### Why Nuts?

WHY ARE we urging people to grow and eat more nuts? Is their production not limited by the law of supply and demand like other commodities? Have they not yet found their proper place in man's dietary?

We who are urging nut culture believe that they have not yet taken their proper place commercially or as a food in this country. In Old World countries it is different. For example, almonds are a very important commercial crop in Italy, Spain and other Mediterranean countries. In parts of Italy the bread is made of chestnut flour. In Portugal the hogs are fattened on chestnuts. The mayor of a little town in the island of Majorca, where a friend of mine was staying, brought out a measure of chestnuts instead of oats to feed his horse. In France and Italy the value of many farms depends on the number of chestnut and walnut trees. Pine nuts are the chief food of several tribes of Indians. But the best proof of the value of nut growing for the United States is the rapid progress of the culture of the walnut and the almond on the Pacific Coast and the pecan in the South. We can leave these regions to take care of themselves. Their people need no urging. They have learned the value of nut culture and will attend to its further development. It is to the people of the central and northeastern states that we particularly wish to show the value of nut culture and of nut food.

Our native nuts, hickory, black walnut, butternut, hazel and pecan are either so small or so variable, thick shelled, hard to crack and to get the kernels from that the demand is limited and the price low. On the other hand the large, uniform, thin shelled nuts, such as the almond, English walnut and the cultivated southern pecan are too expensive for most people to make them a daily article of food. The price is high and the demand and consumption therefore limited. But the production of these high class nuts is not limited by the demand. They can be sold much more cheaply with good profit to the producer. It is one of my life ambitions to help increase the production of good nuts, to help bring down the price and increase the demand. I am sure that one will bring the other. As the production increases the price will fall and the demand increase. This will bring no injustice to the grower for it is certain that nuts can be grown and sold at a good profit at much lower prices than at present.

But someone will say, "How about peanuts? They are cheap and can be cracked in the fingers." Well, peanuts do not by any means fill the whole demand for nuts. People are eating about all the peanuts they can. They are cloying and to some people indigestible. Most people eat them but seldom and soon tire of them. In quality and flavor they do not nearly equal the pecan, English walnut, shagbark, or almond. We must have variety. Recognizing the great value of the peanut we yet cannot regard it as a competitor of the nuts of better quality at anything like an equal price. Besides the peanut isn't really a nut but a pea and might better be called a nutpea.

#### Food Value of Nuts

A nut is a seed and a seed is the result of nature's effort to pack as much food as possible in the smallest possible space for the nourishment of the future young plant. This food is just as good for man as it is for the young plant. A nut is a sealed, individual food package, water free, uncontaminated, never disease carrying, long keeping, easily handled and good to the

taste. Popular opinion inclines to the belief that the nut is indigestible, and so it is if swallowed half chewed with a box of candy or too many at the end of a hearty meal. Not so when chewed until it becomes milk in the mouth and with knowledge that it is a hearty food. A few statements will show how hearty.

Beefsteak is considered pretty solid food. Yet beefsteak has only about a third as much nourishment in it as have many nuts. No one would think of eating beefsteak between meals or as dessert the way we do nuts. Dr. J. H. Kellogg says, "With the exception of smoked bacon there is no flesh food which even approaches the nut in nutritive value." Yet bacon furnishes only 2,715 calories of food value while pecan nuts contain 3,633 calories per pound. As man needs only from 2,500 to 3,000 calories per day it is plain that a pound of pecan meats will furnish him more than enough food for a whole day, enough for a day laborer, in fact.

#### Pecans Are Only 3% Water

Chemical analysis of the nut shows why this is so. Take the pecan again, for example. It is practically free from water, only 4%. Beefsteak has 52%, and even bacon 17%. Of fat, or oil, the pecan carries over 70% while bacon has only 62%. One does not often think of a nut being richer in fat than bacon. Of protein beefsteak has 19%, bacon 9%, the pecan 11%. But the pecan is low in protein as compared to almonds, 21%, or butternuts 28%, or peanuts with 30%. No other form of food, not even Boston baked beans, has so much protein. On this account they are especially valuable since protein is the most expensive element of our food, the element for which we chiefly value meat, eggs, milk and beans, the element that supports growth and repairs waste, the element that makes nuts fill the place of meat in the dietary. It would be more correct to say that nuts supplement meats in the dietary. A certain amount of meat is perhaps necessary for the growing person and for those doing hard labor but for those no longer growing, especially if not doing muscular labor, less meat is found to promote health. Nuts therefore are a good food for advancing years and with milk, eggs and wheat furnish ample protein. Most nuts do not contain enough starch to form a balanced ration. Starch and fat, or oil, are fuel foods. We burn them up in the body for the maintenance of heat and the production of energy. The fats, starches and sugars together perform the same function and we have seen that nuts are usually rich in fats which together with the smaller amount of starch or sugar gives enough of the fuel-energy food elements. Thus nuts form a fairly balanced ration, and every good farmer knows what that is for his animals, and are capable of supporting life. It has not been demonstrated, so far as I know, that man can keep in health indefinitely on a diet of nuts alone. It is not necessary that he should try to do so. But with the addition of fruits, vegetables, bread and butter, cereals and milk his dietary is ample and meat is unnecessary except for an occasional relish of bacon or holiday celebration with chicken or turkey.

To summarize: nuts have not attained their proper importance commercially or as a food in this country. In Old World countries with their thousands of years of experience it is different. They have learned the commercial and the food value of nuts. We fail to make the use of nuts that they deserve because our native nuts are apt to be small, thick shelled and hard

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to crack. But on the Pacific Coast and in our southeastern states, the awakening has taken place and nut growing is firmly established. The use of nuts is still further restricted because the better kinds are still too expensive. But it has been fully demonstrated that we can grow nuts in the central and northeastern United States if we will but plant the improved varieties that we already have and continue our search for more and better ones.

The nut is the richest natural food substance known. It carries no risk of disease, it is long keeping and easy to handle. It is food of the highest quality and perfectly digestible when intelligently used.

#### APPLE FORECAST

By Lillian Trott, Maine

An extensive apple grower who maintains a cider press and utilizes every penny's worth of fruitage, counts cider, jelly, and apple butter among his profits. As long as there is a sound and salable apple he disposes of them whole. But there are windfalls, and a type of natives styled cider-apples, that find no place except in a pressed or cooked form. He considers mixed assortments, sour, sweet, bitter, crab apples, jumbled together, as producing the best flavored jelly, for which cores, skins, and culls may be utilized. After cider is made, he represses for jelly, which must be made before the pomace begins to ferment. If it starts to sour, vinegar may still be made of it. Apple butter by his recipe is half a gallon sweet cider to one and a quarter bushels cleaned, pared, cored apples. They should boil fiercely 40 minutes, then a further half hour with continual stirring. If cooked more slowly it requires less work of watching and stirring, but the product must be thick and dry, and any hint of scorching ruins the flavor. In fact, any slight burning renders apple more distasteful than most scorched foods. To this mass is now added nine pounds, or a little less if apples are not very sour, or 2 gallons hot jelly. Mix, boil, add  $\frac{1}{4}$  pounds spice, put through colander or wire sieve, and store in airtight, cool crock.

An apple tree, just beginning to fruit, is reckoned by apple men, as worth \$25, not reckoning the eight or ten years the planter has to wait for it to blossom and bear a few quarts of luscious fruit. Every farmer has waste places, besides his regular orchard, where he can plant fruit trees. It is making a low estimate to say the average all round farmer can plant without missing pasture space, a hundred trees. Call this \$2,500, by the time the tree is offering its first peck of apples, maybe at eight or nine years of growth. Let the variety be keepers of the cooking-eating variety like McIntosh or russet.

The hardy trees that nobody wants, like Ben Davis, likewise the despised but weather-proof natives, make the best of stock for grafting favorites upon. Top work a few yourself every year, or get a professional grafter to do the bunch the coming season.

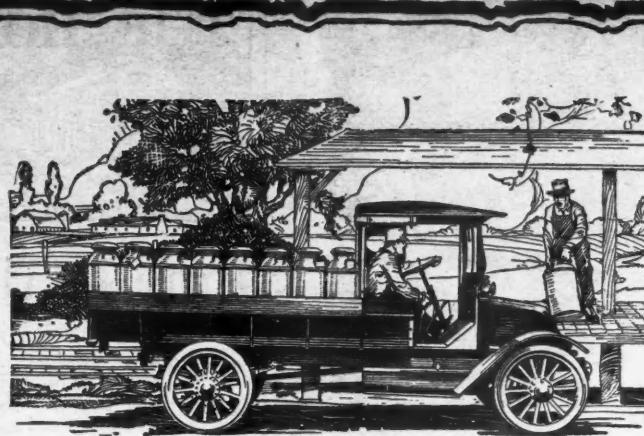
A sod-bound orchard that has not been cultivated for years will give a new lease of life to the trees, or at least bring them into bearing, if shallow plowing is given it. Spring cultivation with a disk harrow, then fertilizer around each tree, will be an advantage. Lacking vetch, clover serves in our northern climates.

After digging out borers, pour hot water around the tree roots, then pack coal ashes around the stem.

Wind a wire fence tightly around the tree trunk, or, better yet, a sheet of tin, to protect against mice and rabbits. If a mulch is used, do not let it come in contact with the bark, where rodents will burrow and gnaw the tree.

Any apple tree worth pruning and spraying is worth a protection against high winds and ice, which break valuable branches by reason of force and weight. Drive stout stakes under each tree, all around the trunk, and connect these by cross rails, for the big, lower branches to rest upon. The weight of ice will not then bend them beyond the cracking point, and if they are lashed to this fence the winds will not tear them from the central stalk.

Every farm needs a library on agricultural subjects. The bulletins issued by the United States Department of Agriculture, Washington, D. C., would form the beginning of such a library. An immense amount of useful information is to be found in these bulletins. Be sure to write for them at once.



## The Motor Truck a Farmer Would Build

**I**F FARMERS pooled their ideas for building a practical motor truck that would best serve their everyday hauling needs, it would offer nothing not now found in the International Motor Trucks.

The reason is plain. The International is the result of a thorough knowledge of farm conditions. This Company knows country roads. Ample provision has been made to withstand the strain and stress of highways that place an unusual tax on parts subject to wear. Only the best materials are used, after thorough test. The truck is simple and durable.

### International Motor Trucks

will do the work expected of them at a cost farmers can afford. They give a service that is reliable, prompt and economical in the severest test of all—**steady performance in actual daily use.** They have ample power for any emergency and can be depended upon to keep going every day in the year.

Farmers everywhere find an International Motor Truck a source of profit from the outset. It saves time, labor and distance. Markets are brought to the door and better prices are possible for farm produce, which retains all its freshness. The item of return loads is an important one from the standpoints of both business and convenience.

There are four sizes of International Motor Trucks—1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling.

We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

International Harvester Company of America  
(Incorporated)

CHICAGO

### The Full Line of International Harvester Quality Machines

#### Grain Harvesting Machines

Binders	Push Binders
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Shockers	Threshers

#### Tillage Implements

Disk Harrows	
Tractor Harrows	
Spring-Tooth Harrows	
Peg-Tooth Harrows	
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#### Planting and Seeding Machines

Corn Planters	Corn Drills
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Mowers	Side Delivery Rakes
Comb. Side Rakes & Tedders	
Tedders	Loaders (All types)
Baling Presses	Rakes
Sweep Rakes	Stackers
Comb. Sweep Rakes & Stackers	
Bunchers	

#### Belt Machines

Ensilage Cutters	Corn Shellers
Huskers and Shredders	
Hay Presses	Stone Buff Mills
Threshers	Feed Grinders
	Cream Separators

#### Power Machines

Kerosene Engines	Gasoline Engines
Kerosene Tractors	Motor Trucks
	Motor Cultivators

#### Corn Machines

Planters	Motor Cultivators
Drills	Ensilage Cutters
Cultivators	Binders
Shellers	Pickers
	Husker-Shredders

#### Dairy Equipment

Cream Separators (Hand)	
Cream Separators (Belted)	
Kerosene Engines	
Motor Trucks	Gasoline Engines

#### Other Farm Equipment

Manure Spreaders	
Straw Spreading Attachment	
Farm Wagons	Stalk Cutters
Farm Trucks	Knife Grinders
Tractor Hitches	Binder Twine

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No coal or wood. Cooks and bakes  
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burn coal-oil (kerosene). Simple,  
safe, easily put in or taken out.  
Burns coal-oil (kerosene).  
Thousands of delighted users. In use  
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literature. AGENTS WANTED.  
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#### AGENTS: \$40 A WEEK

Selling our guaranteed honesty for men, women and children. All styles, colors and finest line of silk hose.

Guaranteed ONE YEAR Must  
wear 12 months or replaced free.

Pleasant work. Handsome  
profits. Sell every day in the  
year. Often sell dozen pairs  
to one family. Make per-  
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Sworn proof. Act quick. This is the  
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## American Fruit Grower

You too can net yourself just as attractive a weekly salary if you are in a position to devote all or a large part of your time to this work.

We will gladly tell you how you can earn a salary like Pichot's if you will simply request us to send you our salary and expense proposition. Write to

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**Traffic Truck**  
4,000 LBS. CAPACITY

\$1395

**Would You?**

Would you knowingly pay hundreds of dollars more than is necessary for a motor truck that will meet your hauling requirements?

The Traffic is the lowest priced 4,000-lb. capacity truck in the world—it is for the man who has money to invest and not to spend for a truck.

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**PUMPS**  
FOR EVERY PURPOSE**June In the Vegetable Carden**

By J. T. Rosa, Jr.

GARDEN work should be pushed with a rush through June. With warm weather and plenty of moisture, both weeds and crops are making phenomenal growth, and both require attention. Weeds and grass are easily killed by light cultivations when they are small, but if allowed to get a good start this early in the season, it will mean hard work and much trouble later on. The weeding hoe, the rake, and the wheel-hoe cultivator might well be used freely now. Where the ground has been packed down by rain, over hills or rows of seed which have not yet germinated, a thorough light raking will break the crust and let the seedlings through in good shape. On rather cloddy land, a roller can be used to advantage.

The early crop will soon be harvested, and out of the way, making room for

are two long season vegetables of a tropical nature which do well planted at this season.

A supply of sweet corn as well as snap beans may be insured for the late summer and early fall by planting now. Plants of late cabbage, and winter celery should be set out toward the latter part of June. Copenhagen Market and Drumhead are the premier varieties of cabbage for the late crop. Also the Red and Savoy cabbages should be given a trial. While rather uncommon, both the latter varieties are usually high priced and are of extra good quality. The plants should be watered after transplanting, unless the soil is wet from recent rains.

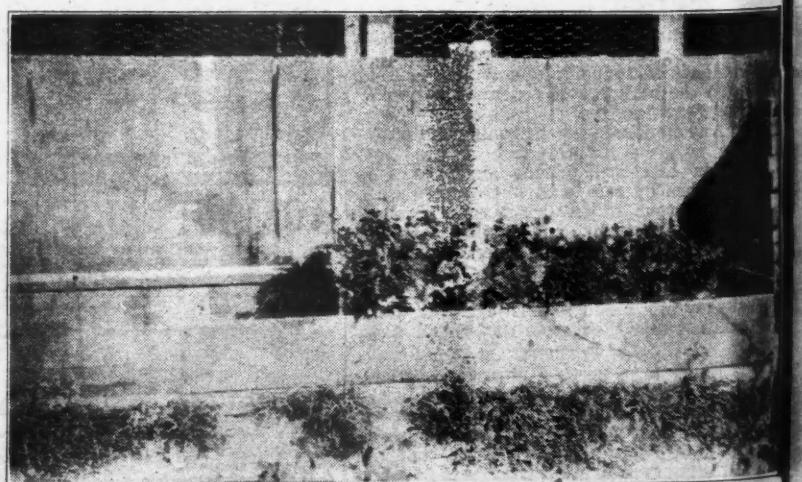
**Root Crops for Winter Use**

Probably the most important crops for garden planting during the present month



Well Kept Summer Garden—Note Beans on Fence

later crops, especially those designed for winter use. Not a day should be lost in replanting idle land. Clear away the pea vines as soon as the bulk of the crop is picked. The radish, lettuce, and spinach areas are also now available. This should be spaded up to make conditions more favorable for the succession crop. The "all-season" garden is far more valuable and efficient than the spring garden alone. Every effort must be made to keep the land busy by planting and replanting until the fall. Among the tender short season crops which may be planted now are, Salamander lettuce and White Icicle radish, okra and New Zealand spinach, are the root crops for winter use. By this are included beets, carrots, parsnips, salsify, leeks and other less important crops. It is true that plantings of each of these crops may have been made earlier in the season, but it is well to make additional plantings now, so as to insure a good supply for winter storage. Remember that the root crops can be kept quite easily in their natural condition, and can be had fresh and plump from the storage cellar, months after other fresh vegetables have disappeared. Sow these crops in rows 15 to 18 inches apart, and cultivate entirely by hand tools. The root crops produce more food value from a given area than any



Celery Grown in Empty Hotbed During Summer

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other class of crops. Heavy fertilization, liberal manuring, and deep spading of the soil pay well with the root crops. About the first of July, a planting of rutabagas or "swedes" should be put in. This is a splendid hardy root crop of good table quality and keeping quality, which deserves to become better known in northern sections.

#### Summer Crops in Frames

Some use should be made of the empty hotbeds and cold frames which, in the average garden, are allowed to stand empty or become choked with weeds after the spring vegetable plants are removed. In the small garden especially, this space should not be wasted. The soil in the frame is generally rich or heavily manured so that it will produce luxuriant growth. Of course, there is no need for the sash or covering of the frames in growing summer crops, although these may be replaced in the fall to give protection to the crop growing within the frame. It will be surprising to most gardeners to find how much a summer crop will produce even in a 6x12 foot hot bed. One of the best summer crops to grow in frames is celery, especially the large green varieties like Winter Queen. The plants may be set during June, the seedlings having been started at least two months before. Spacing 6x8 inches apart, over two hundred plants can be set in a 6x12 foot bed, which is more celery than the average family consumes in a year. Another advantage of this scheme is that the celery may be blanched and stored for winter use by simply placing the covers over the frame in the late fall and covering this with straw or some other material to exclude light. Other vegetables that will succeed when set in frames are eggplants, pepper and bush squash. Three or four plants of each may be set in the frame in the spring after the tomatoes, etc., are set outdoors. These few plants will produce nearly enough fruit to satisfy the demand of the average family for these particular vegetables. Onions, and sweet corn, with pole beans will also grow nicely in the old hotbed or empty cold frame. Any vegetable being grown in a frame during the summer will need watering, and some cultivation to keep down weeds. With this small amount of care, quite a few extra vegetables can be grown. Wherever there is a hot bed or cold frame, the gardener should not overlook this opportunity to make use of it in summer, for it is a real help in "efficiency gardening."

#### Staking Tomatoes

For the best results in the home garden, tomato plants may be trained upon a support of some sort, usually a short stake for each plant. This makes it possible to place the plants closer together and to get a larger crop from a smaller area. Staking greatly improves the quality of the crop, since the fruit are kept from coming in contact with the earth, so that they are all clean and free from rot. Very often the plants are trained to a single stem by pinching out all the shoots except the central leader. This favors the production of a small extra early crop of fancy fruit, but for general purposes and for securing a big yield it has been found better to let the plants go unpruned. An extreme type of pruning for a very early crop, which may be expected to bring fancy prices, is sometimes practiced by market growers. This is to stake each plant, prune to a single stem, and pinch off the central leader after about four clusters have set, thus concentrating the whole energy of the plant on maturing the four clusters already formed. On rich soil, this treatment might result in a thicket of new sprouts from the stem, or in abnormal or ill-shaped fruits.

Where stakes are to be used for tomatoes, the plants can be set 24x36 inches apart, and soon after transplanting the stakes should be placed in position, setting one near the base of each plant. Poles from one to two inches thick and four to six feet long are very handy to use, and can be kept from year to year for this purpose. The stakes should go into the ground a foot or more so that wind storms and the weight of the plants will not topple them over. To facilitate setting the stakes, a crow-bar is very useful, as it can be easily driven to the required depth, and by working from side to side, a hole can be made large enough to receive the stake. Strong rough twine, such as binder twine, should be used to tie the plants to the stakes. The first tie should be made about one foot from the ground

and successive ties ten or twelve inches apart as the growth of the plant requires this support. In tying up a plant, make a double tie to the stake, then draw all the stems and branches of the plant within a rather loose loop made with the two ends of the string.

An intercropping scheme which may work well in the home garden is to grow pole beans with the tomatoes, planting a hill of beans alongside of each plant. The same stake serves to support both the tomato and the beans and both crops seem to get along very well. Usually the tomatoes are well started before the beans are planted and this plan works best in case of an early tomato crop, where tomato vines finish fruiting and are removed about the time the lima beans come into bearing. The latter crop then retains the full use of the stake until a killing frost occurs in the autumn. While staking tomatoes is too laborious and expensive for a very large planting, it pays well in the home garden and early market crops, for the increased yield of good fruit, superior earliness, fancy quality, freedom from disease, ease of cultivating, spraying and harvesting, are all in favor of the

staked plants. The staked plants remain healthy and vigorous, very often when unstaked plants laying on the ground have been completely killed by disease. Any sort of frame, trellis or other device which keeps the plants up off the ground is very helpful, but generally staking and tying is the simplest and most effective way to handle tomato plants.

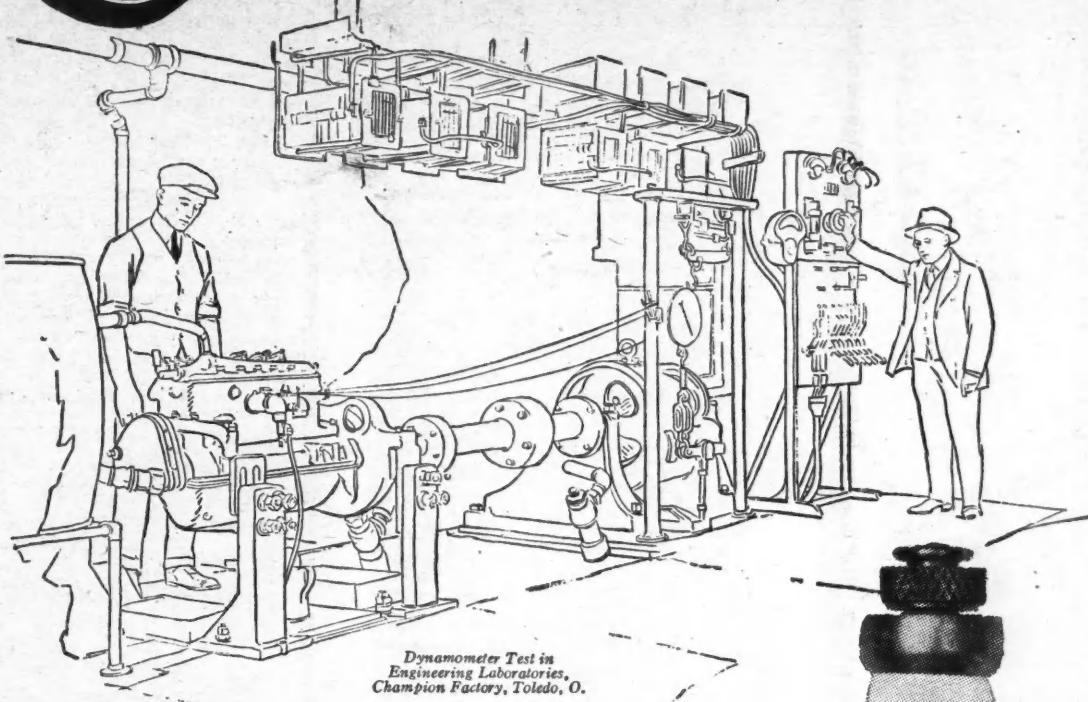
#### Protect Potatoes From Tipburn

It is probably true that in most seasons, tipburn is the limiting factor in growing good potato crops in most sections of the corn belt, south of Chicago. This trouble results in the tips and edges of the leaves becoming brown and dry, later the whole leaf dying and the plant is killed. Hot dry weather usually brings on the tipburn trouble, although this may not be the only cause.

Many growers call this trouble "blight" because the plants assume a browned, blighted appearance. To increase potato yields; or to get anything like a full crop, we must keep the plants green and vigorous for a longer time in spite of the tipburn. Bordeaux mixture sprayed on the leaves does this to a certain extent. Mulching

between the rows also keeps the plants alive longer, but this is only practical where few potatoes are grown. It has recently been found by Dr. Bell, at the Iowa Station, that leaf hoppers can transmit a certain amount of tipburn by going from diseased to healthy plants, but we know nothing about controlling this form of the disease yet. It is certain, however, that about three sprayings of 4-4-50 bordeaux will greatly lessen the amount of tipburn if applied about ten days apart, after the plants are large enough to bloom. This will lengthen the life of the plant sufficiently to produce a larger crop. If Colorado beetles and blister beetles are feeding on the plants, they may be controlled by adding an arsenical, such as lead arsenate, to the bordeaux mixture. Incidentally, the bordeaux mixture will control both early and late blight, two diseases which are sometimes serious on potatoes in this section. There is quite a difference in the amount of tipburn on different early varieties of potatoes. The Bliss Triumph is affected first and most severely. The Early Ohio is moderately affected while Irish Cobbler and Early Rose seem slightly resistant.

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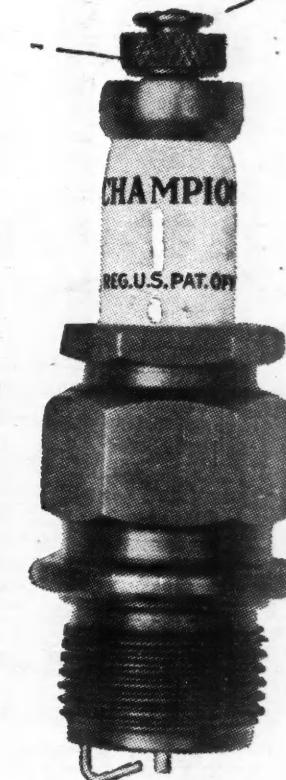
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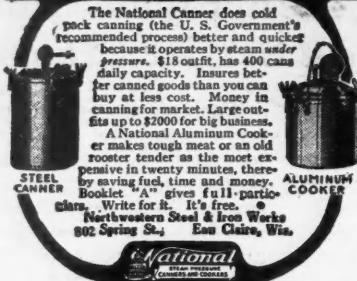
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## Preparation for the Harvest

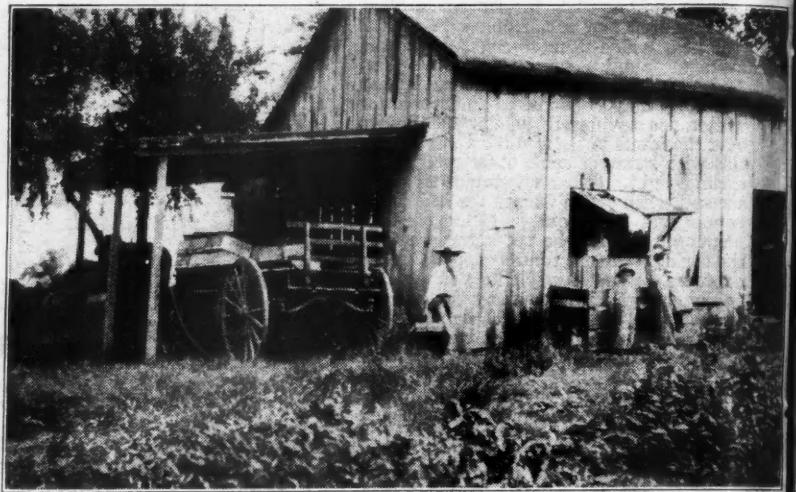
By S. J. Bole

AS THESE notes are being written strawberries, currants, gooseberries and the tree fruits are coming into full bloom in northern Missouri. Time passes very quickly, however, at this time of the year and the grower should order at once his package materials. It so often happens that one waits until a few days or weeks before picking begins that the order is placed and the materials arrive a few days or weeks after the harvest is over. In the meantime, one has been obliged to pick up packages here, there and everywhere and generally paying more for poor and second-hand stuff than the new costs.

Then on some rainy day in the near future, the grower should clean out his storeroom and clean up the packages left over from last season. Like many other necessities, package materials are now difficult to secure at any price. Another big advance in prices this season would disturb the grower somewhat were it not for the fact that the prices of fruit are still very high and tend to go even higher. A scarcity of soft wood and the increased

of basket or box. Each of these has its advantages, the box fitting closely into crates which prevents much bruising by keeping the berries from moving about when in transit or in rough handling to or from the car. The basket, on the other hand, stores readily because they telescope together and take up but little room. This permits the grower to buy his "quarts" ready made and not in the flat. When there is a box factory in one's town, boxes can be bought ready made. If the grower lives some miles from a factory, the materials have to be bought and shipped in the flat and made up at odd times. To do this, stapling machine is necessary to make up any considerable quantity. With the present prices of labor, this method costs more than one realizes even if done on rainy days. On the whole, therefore, it would seem best to use boxes, in shipping to a distance and baskets when selling to a local market.

There is scarcely any need of discussing the use of "scant" and "full" quarts at the present time. With high prices, the



A Packing Shed Where the Crates are Kept in the Shade After Being Filled and Loaded on Wagons

cost of labor and freight rates are some of the reasons for this advancement. Logs now have to be shipped long distances to basket factories.

### Paper Packages

Although paper has also advanced greatly in price, it is quite probable that paper packages will soon be largely substituted for wooden ones. They are already made and used to some extent. It is quite probable that some fiber crop will in the near future be grown especially for the manufacture of paper and paper packages. One objection to "quarts" made of paper is that of inferior ventilation. For a local market is not very objectionable and could be remedied by perforating the "quarts." Another objection is that paper packages crush in shipping but as there is no shipping for local markets and as a large portion of the small fruits are grown and sold locally, this objection is not serious. These paper "quarts" can be shipped in wooden crates without being crushed.

### Kinds of Crates

For the grower of small fruits who sells to the local trade, well made permanent crates with handles, hinged covers and one's name printed on the cover or front are cheapest and best in the long run. One can make these of various sizes and shapes to suit his convenience. The writer prefers the 32-quart size containing four layers of eight "quarts" each. The size of crates varies in various parts of the country. In the east 32-quart crates are in general use; in the south, 24-quart crates; and in the region adjacent to Michigan, 16-quart crates. In shipping fruit where gift crates have to be used, the growers always buy the size and style of crate that is in common use in his part of the country. This, however, will not apply to the grower who peddles his fruit from house to house or who sells to the retailers in his home town.

Of course, the crate whether homemade or manufactured in the factory, must be made for a certain size and shape

consumer should be given a full quart package filled full of berries. Then too, many states and most large cities have laws and ordinances against the use of "scant" quarts.

Growers of limited amounts of fruit may be interested to know that wood and metal forms on which to tack together boxes may be bought for a few cents each. A small magnetic hammer costing a quarter is also useful. A box is made of two pieces of veneering, one for the sides and the other for the bottom. These are scored and are readily bent inward at the groove marks. The two veneer bands are bent into shape, four tacks being used on the top side, two through the lap and two near the corners; also two or three on the side opposite. If the material is held over from one year to the next, it becomes very dry and breaks. In this case it should be left in a moist place for a few days before being made up. One can nail up by hand 100 to 150 boxes an hour and with a machine, 400 to 500 an hour.

### Forms for Making Crates

The grower large or small who uses gift crates should have one or more crate forms. These can be bought or made by hand! The forms consist of a base and wide board at right angles, with double strips nailed on each of these into which the ends and middle partition are placed. The ends and middle partition are thus held in exact position while the bottom and one side of the crate is being nailed into place. The crate is then removed from the form and the remaining side nailed securely. With such a form a man can make from 15 to 20 crates per hour and a grower cannot afford to do without one or more of these.

Some factories make crates and basket materials out of green logs with the result that the veneer warps badly when it dries out. Such material makes awkward looking and unsightly packages. Material made from dry soft wood make a cleaner appearing package and the dry wood absorbs the moisture from crushed berries.

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which prevents the injury of adjacent sound berries. The grower of high quality fruit should stamp his name on each quart package. Consumers are becoming more and more discriminating and the careful grower can in this way build up a local reputation, in a rather short space of time.

#### Picking Into Baskets

Small growers and even many large ones have their berries picked first in pails or baskets and then poured into the quart packages and packed into the crate. Small fruits and especially strawberries should never be poured from one package to another. Berries are bruised more or less at best and should always be picked directly into the package in which they are sold. Then too, the gradual jarring of the fruit as it is picked tends to give a firmer packed mass of fruit which holds up better in transit. The only exception to the above is where berries are to be used at once in the home or where they are to be graded. As a matter of fact very few berries of any sort are graded in packing sheds.

#### Carriers in Picking

The picker may pick directly into a single quart package or use a carrier that will hold four or more packages, and strawberries are readily picked by either of these ways. In case of bush fruits where one picks in a standing position and in moving from bush to bush one cannot pick with both hands unless some sort of



Six-basket Carriers, Two Types of 24-quart Crates and One 16-quart Crate

a carrier is used. These carriers, trays or picker's stands are made in various ways. Those for strawberries are generally very shallow and hold either four, six, eight or more quart packages. They may contain short legs or none at all and they are moved about by means of a strong handle. These may be bought at a basket factory or made from light box material and a portion of a wooden barrel hoop for a handle. As these carriers are picked full the quart packages should either be placed directly into the crates in the field or carried to the packing shed where this is done. In any case, berries should never be set in the sun even for a few minutes.

For bush fruits, the carriers are made with somewhat higher sides to prevent the quarts from falling out and smaller in size to prevent awkwardness. These carriers are belted to the waist of the picker and permit the use of both hands in picking. As soon as a carrier is picked full the quarts are set in the shade and replaced by empty baskets.

#### The Packing Shed

A packing shed is almost necessary for the small fruit plantation. It may be of any size, shape and material, the one nearly square and made of wood is generally best. Where a grower has many strips of different kinds of fruit, a shed built on runners is found to be very serviceable. Such a packing shed can be moved from place to place as the season advances and the different fruits ripen. A very necessary thing for a packing shed is a good roof and sides that will prevent rain from getting in and soiling the packages. Provision should also be made for sufficient light and ventilation. Folding doors which are supported in a horizontal position in the shed make excellent tables on which to receive the fruit from the pickers, as well as to admit light. The filled quarts may be taken from the shelves or tables and packed into the crates which are set to one side in the shed as soon as filled.

#### Accounts With Pickers

No attempt will be made in this article to tell how pickers should be managed. This is an individual matter and differs with the number of pickers. Provision should be made, however, to keep the accounts with the pickers. There are four principal methods of doing this as follows: Cash, checks, tickets and the day book. From these the grower may "pay

# Firestone

## Red Inner Tubes

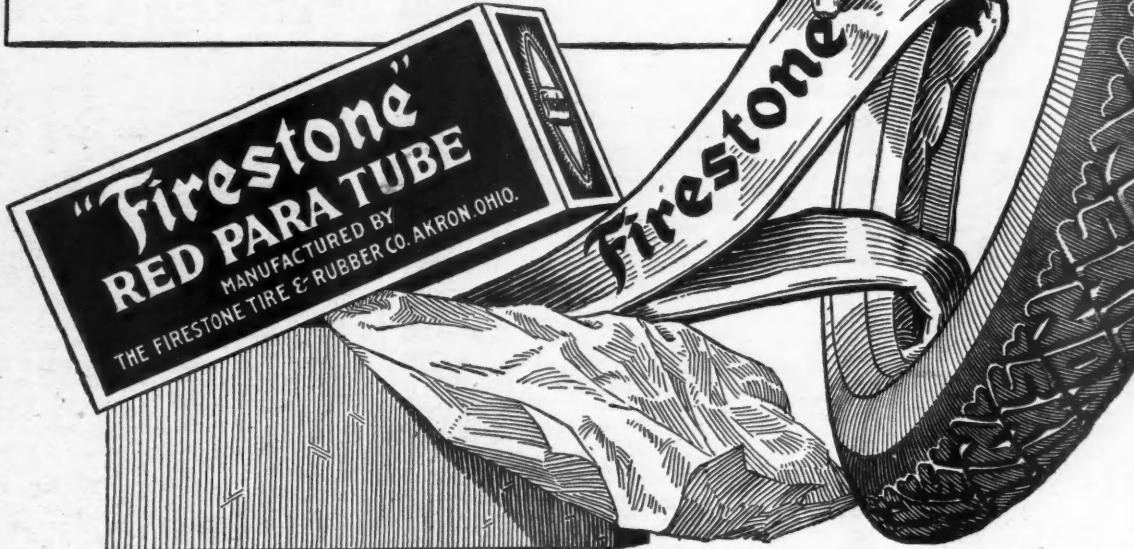
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his money and take his choice." Where one depends on anybody and everybody that appears from morning to morning, the cash method is possibly the best. A cash register is almost necessary and each picker is paid each time he brings in one or more carriers or crates of fruit. Where checks are used the grower generally arranges with a local grocer to cash the checks as presented. They are thus used over and over again until worn out. Tickets can be purchased from basket factory concerns in quantity. The name of the picker is written on the ticket and the figures on them are punched as the certain number of quarts are brought to the packing shed. A peculiar shaped punch which cannot be counterfeited is used for this. The day book method works very well in case of a limited number of pickers who pick throughout the season. In this case the pickers are generally paid once each week and at the end of the season.

#### NEW ZEALAND AND CALIFORNIA GRAPES

Owing to the fact that grape growing seasons in New Zealand and California are opposite, and that the price of hot house grapes in New Zealand is prohibitive at the season of abundance in California, some fruit market investigations were conducted by the United States Bureau of Markets with the result that New Zealand will now receive California grapes, though formerly only imports from Australia were allowed. This opens a new outlet for California grapes.

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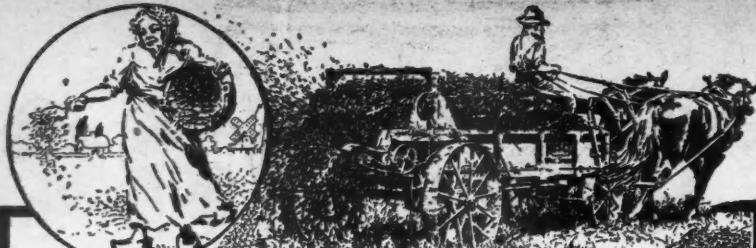
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Necessity has taught the thrifty peasants of Europe the golden value of manure. Every ounce is painstakingly returned to the soil, even if it must be done by hand to get good distribution. That is why "Over There" they get such large yields per acre.

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Progressive farmers who realize the value of manure and leading authorities agree that one of the best paying machines for the farm is the

"I bought one of your Manure Spreaders about three years ago. I have used others, but they are not good spreaders, but this machine has two cylinders tear the manure to pieces and then that distributor pulverizes it right. It runs light and I like it well."

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C. M. Hatch, Ohio.

"Last Winter my son purchased one of your spreaders, though I had an old one that I thought he could get along with. I know of no better way to tell you what I think of yours than to say that it is just as far ahead of my old one as the old one was ahead of the fork lift wagon. Every farmer should have one."

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## Livestock and Dairy



### Soiling Makes More Milk

By R. B. Rushing, Illinois

SEVERAL careful experiments in various states result in strong favor of soiling over pasturing. Especially is this noticeable in states or seasons that are usually visited by midsummer drouth. Some experiments show that the milk and butter production is from three to six times as much using a crop of rye and corn, or clover and corn, over the average pasture per acre. I can always tell that my cows present a better appearance. I have noticed they are less annoyed by flies when fed than when allowed on pasture.

As to the variety of crop to use for this soiling, I can not tell you, there are so many good ones one can take his choice. I will say a safe rule to go by is to select such varieties as do well in the locality. Peas and oats, oats and clover, oats and corn, rape, cowpeas and corn. Of course these are all to be fed green.

I have found that I can keep more cows on a given number of acres by soiling than by pasturing. Also keep the soil in better

cause as a half-breed, or hybrid, it excelled as an all round animal. But in flock after flock of mongrels and grades I studied the characteristics of nearly every breed familiar in this country, and for one reason and another discarded them all for the Shropshire. It may be that the others did not blend well, or had been crossed upon the wrong counter types. But it would seem odd that it so happened in every case.

One of the unsatisfactory features of the Shropshire is the habit of hair growing on face and limbs, giving the animal an untidy appearance, and resultant brambles in the wool. From this tendency, the Hampshire, related in many respects, is reported gaining in certain localities. Its admirers claim for it all the Shrops' virtues, too,

with greater weight.

But as purely mutton breed the Southdown has most friends, though the Dorset, it is argued, should rank superior even there, on account of remarkable fecundity and fewer losses because of the ewe's bad for

lamb is used too, a the m for bo market mong Shrop Shrop motley pear.

I have a flock script figure, bred fitter to secure. Don't fleece sheep, while the sir black—soon f home.

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Hogs Pasturing on an Alfalfa Field

fertility. But there is, of course, more work and time attached to the former way. As to whether it will pay to do away with pasturing, each must decide for himself. If one will raise all that is possible on the land, feed it economically, so that there will be no waste, it will certainly pay well for the extra time and work required. I will say if one has a broken farm, or broken by hilly fields, well set in grass, it would certainly be foolish to plow up such land. Whichever is best to do, at least do not turn the cows on the pasture too early in the spring. Let the grass get a good start; do not turn them in constantly at first, a half day will do almost as well, and will not injure the grass much.

It is best to keep the cows off the grass entirely while a drouth lasts and, above all, do not fail to grow a forage crop to tide over the dry spell. This extra crop will save the pasture, the cows, the pocketbook, temper and perhaps damages, if the fences are not the best. And if the pasture adjoins a growing crop, some of you good farmers try a few of your cows on this, this spring, and see how you come out. I think you will say fine.

### THE BEST SHEEP

By C. H. Trott, Maine

With sheep interests to the fore, the question of desirable breeds come uppermost.

I have dealt with but one pure bred, registered type, that of the Shropshire, chosen from grades of different breeds be-

native courage. Hot house lambs are the chief source of income from Dorsets, taking the country—and the breed—by and large.

Still, I adhere to my first selection of the Shropshire for an all round sheep. Some breeders turn them down for producing a large proportion of culs. I have not found this the case, and I culled closely, and would advise every beginner to mercilessly weed out all inferior females every fall when the flocks come to barn. To build up a superior flock, retain as breeders only those individuals in advance of the mediocre class.

To do this, bear in mind the type, or standard, for that especial breed, and keep strictly to it. For example: The Shropshire has a compact body, and one that is unsymmetrical does not conform to type. But looks are not all. It is only after the ewe has yeasted once, perhaps twice, that one can determine whether she makes a prize breeder. If her first lamb or lambs kick the beam, "handsome is as handsome does." The wool yield, too, is a consideration.

### Shropshires Produce Twins

Shrops are classified as averaging highest for wool-and-mutton, averaging among first class purebreds 10 to 12 pounds per annum of wool. In flocks of mongrels mine averaged 7, and individuals yielded as high as 16.

Another virtue of Shropshires is their capacity for producing twins, year after year, as long as they can stand up. Not every one brings forth twins every season. In fact, many cases are noted where a sheep never yields more than a single

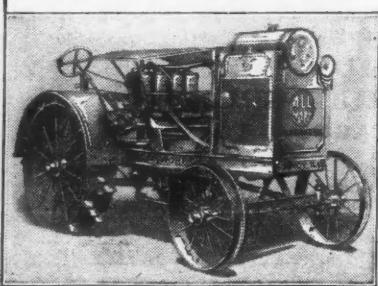
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lamb a year, though that isolated lambkin is usually "a coker." But the twins, too, are corkers; and, husky as they are, the mother is apt to have plenty of milk for both. This proclivity towards twins is marked among the most diversified of mongrels as long as there is a strain of Shropshire blood in them. And when a Shrop purebred buck is introduced into a motley flock of sheep, twins begin to appear. The Shrop is a contented creature.

I have found it a paying course to start a flock of the best individuals of nondescript sheep obtainable at a moderate figure, and grade up to a practical purebred flock by means of a change of registered bucks every few years—taking care to secure a young one, one to two years old. Don't buy a mature buck, or you may get fleeced as to age. And don't buy any black sheep. There is no sale for the wool, and while you may produce lambs, white like the sire, the black ewe will always remain black—or fade to brown, and her wool will soon furnish more yarn than needed at home.

#### SPRING CARE OF HORSES

With special reference to care of horse stock, the Boston Work-Horse Relief Association issues the following spring circular:

Do not fail to provide clean, warm quarters in which your cows, ewes and mares can bring forth their young. Navel ill comes from dirt.

It is dangerous to expose young stock, especially foals and colts, to spring rainstorms. A day's exposure, if not fatal, may stop a month's growth.

It is bad policy to turn the stock to pasture before the grass has well started—bad for the pasture and bad for the stock.

When the pasture season begins, turn the stock out at night, instead of in the morning. Then they will feed through the night, and not lie down until the sun has warmed the air and the ground.

Get your horses into condition for spring work, the young horses especially. Many a colt has been ruined by being put to hard work without preparation. It is the same with green horses.

In warm weather, thorough grooming is almost as important as feeding. Without it, dried sweat, dead skin, and dirt clog the pores, make the horse uncomfortable, and affect his health.

Look out for sore shoulders and backs, especially in plowing. Be sure that the collars fit. A collar too big is as bad as one too small. If the collar rides up, use a martingale, or a girth running from trace to trace, back of the forelegs.

When the horses are at work on a warm day, lift up the collars now and then to cool their shoulders, and wipe off the sweat and dirt with a bunch of grass.

Wipe off the harness marks on your horses when you stop work at noon and at night, and clean the inside of the harness, the collars especially. The salt sweat, drying on the skin and on the harness, is what makes the trouble.

If the skin is wrinkled under the collar or saddle, bathe it with diluted vinegar or witchhazel. If the skin is broken, bathe it with clean, warm water containing a little salt. Fix the collar, with padding or otherwise, so that it will not touch the sore spot the next day. A little carelessness at the beginning may cause a lot of trouble to you and suffering to the horse.

Clean your horses at night, water them, give them a good bed, and water them again after they have eaten their hay so that they will not be thirsty all night. Let them rest an hour or more before they are grained. The observance of these simple rules will not cost you a cent, and will make a big difference in their condition.

#### RETAINED AFTERBIRTH

Considerable experience with cases of retained afterbirth among dairy cattle confirms our opinion that many cows become sick, and some die, without the real cause ever being diagnosed. We know of a case in which a Jersey cow did well for a week after calving, and then became sick and had a fever of 105°. She was treated for pneumonia, but died after two days of terrible suffering. Postmortem showed that a portion of the afterbirth had been retained and had caused blood-poisoning. A Holstein cow after calving followed the same course and upon washing out her uterus with an antiseptic a small piece of disintegrating afterbirth was found; the next morning her temperature, health, and



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vigor were normal. Many years of experience leads to the recommendation that every cow should be examined for retained afterbirth a few days after calving, and if any complications are suspected a trained veterinarian would best be called immediately.—J. J. Hooper, Kentucky Experiment Station.

#### KEEP CLEAN STALLS

Whether for horses, cattle, pigs or sheep it is desirable that their quarters be kept clean. Many of our farmers are far too careless on this subject. Human hygiene is just beginning to be appreciated, so we may have to wait yet awhile longer before animal hygiene is understood and practiced on the farm, but in the meantime our livestock will be far less profitable than if cleanliness were constantly attended to.

There is lots of infectious disease spread among livestock and poultry by dirty boards and ground. Parasites also thrive in the dirt, and if they do not directly poison the animals they at least deplete their disease-resisting powers. Sweep, scrape and spray the living places of the

farm animals. If there is a dirt floor, spread fresh dirt over the old surface from time to time. Remember that disease germs are more apt to be developed and spread rapidly in winter quarters where animals are more confined than they are apt to be in summer.

#### SWINE FOR SOUTH AMERICA

To help South American swine raisers improve the quality of their droves, a big packing concern is arranging to send a large number of pure-bred boars and gilts from this country to use in Brazil and the Argentine. Duroc Jerseys and Poland Chinas predominate among the types that are being collected and conditioned for the first shipment south. Orders for other breeds are expected for future shipments.

"South America presents some wonderful possibilities for raising good hogs, and the producers there are alive to their opportunity and anxious to secure the best breeding stock that is available," says a member of this concern. "We are equipped to pack a considerable number of hogs at San Paulo and Buenos Aires in

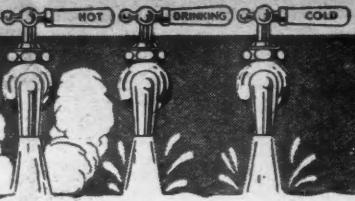
the Argentine, and the pure-breds that we are sending south will be distributed in the sections adjacent thereto."

#### USE OF DAIRY PRODUCTS

According to a recent statement of the Department of Agriculture, this country has one milk cow to every four and one-half persons. This imaginary average cow produces 4,000 pounds of milk a year and has 43.1 per cent of her product used for home consumption, 41 per cent for butter, 5 per cent for cheese, 4.3 per cent to support a calf, 3.7 per cent for ice cream, and 2.9 per cent for condensed milk.

The estimated daily consumption per capita is one pound of milk and two-thirds of an ounce of butter for table use and for cooking; one-sixth of an ounce of cheese per day, and one-half of an ounce of ice cream are the average allotments of the other products.

Obviously, this is too small an allowance for good health, just as the 4,000-pound yearly average is too low. The dairyman's job is to increase demand and use more efficient methods.



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*and fresh, clear, drinking water  
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Prince Albert is a pippin of a pipe tobacco; rolled into a cigarette it beats the band! And, what you're going to find out pretty quick thousands of men discovered as long as ten years ago when P. A. started a smoke revolution!

Get the idea that P. A. is simply everything that any man ever longed for in tobacco! You never will be willing to figure up the pleasure you've missed once you get that Prince Albert quality flavor and quality satisfaction! You'll talk kind words every time you fire up!

Toppy red bags, tidy red tins, handsome pound and half-pound tin humidores—and—that classy, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

R. J. Reynolds Tobacco Company, Winston-Salem, N. C.

Kindly Mention American Fruit Grower when writing to Advertisers

## Marketing Fruits by Parcel Post

By Earle W. Gage, New York

FRUIT growers have found the new regulations of the Post Office Department, permitting shipment of packages up to 70 pounds within the first and second zone, or up to 50 pounds outside the third zone, favorable to delivery of fruit of a perishable nature by mail. Hundreds of growers have already taken advantage of this system of delivery, thus securing increased prices and a wider field of distribution.

Many who consider this an idle dream, seem perfectly friendly to a system of delivery through the express route which is uncertain, unsatisfactory, and which has been demonstrated to be a gamble for the shipper. They seem to forget that our mail service promises quick delivery of parcels labeled "Perishable," together with careful handling, both of which no modern express company may be rightfully accused of.

The Post Office Department are now organizing a system of motor truck delivery from the fields of production to the centers of consumption, which means that fruit and vegetables may be placed in the trucks at certain points early in the morning, hurried to large cities, there delivered at the consumer's table in time for the noon-day meal.

### Use of Parcel Post

But the regular mail service renders a system of distribution which has many favorable points for the grower of fruit who is located at a distance from market

from the appearance of a basket of berries, but which may destroy a whole shipment by decay. The berries should not be handled after they are picked, which means that the grading should be done when the fruit is picked.

The crates which gave the best satisfaction in the experiments were the slatted sided type, with proper ventilation through the bottom, being provided with racks or dividers to separate each layer of baskets. These crates carried berries on an average of 150 miles from place of mailing with success.

The best baskets for mail service are the standard square berry baskets which are smaller at the bottom than at the top, permitting proper circulation of air around each basket of fruit. The strawberries shipped in the crates holding 16 quarts or more, arrived at destination in better condition than those shipped in smaller crates. Not only do large crates allow more ventilation than smaller crates, but they are more carefully handled in the mail.

### How to Address the Crate

A crate of strawberries, or any other perishable fruit, sent by mail should bear the name and address of the sender, preceded by the word "From." This should be written legibly in the upper left-hand corner of the cover of the crate. In the center of the cover, either on the cover or on a card securely tacked on, should be the full address of the person to whom the crate is to be delivered. If sent to a city, the



The 24 and 26-Quart Strawberry Crate Ready for the Mail Man

and who, otherwise, would be without any market. These growers, located in remote sections, where the community does not grow sufficient fruit of one kind to permit car-lot refrigeration shipments, find the parcel post a profitable outlet for surplus fruit of various kinds.

Poor returns are often received for berries of good quality because of a reported glut in the market. Most growers believe that often there is no reason for glutted markets for good berries and cherries of quality, and thus they become dissatisfied with marketing conditions. Growers who must ship from points where berries are not grown in large quantities, are at the mercy of the middlemen, since they can put forth no co-operative effort. Not only do these men find the farm-to-table sales plan profitable, but many who do, enjoy the better distribution systems.

The Department of Agriculture, in cooperation with the Post Office Department, have four seasons, 1915, '16, '17 and '18, carried on experiments in an endeavor to ascertain the feasibility of delivery of the most perishable of fruits by mail. Experimental shipments included strawberries, blackberries, huckleberries, raspberries and cherries. These shipments were made in commercial crates of the standard market sizes, such as 16, 20, 24, 30 and 32-quart, and the various sizes of pint crates for raspberries. The officials report after four seasons' experience, including two with very adverse weather conditions for ripening and marketing, that the mail route promises great things for the fruit grower who will carefully pick, pack and handle his product.

### Handle Berries With Care

Fruit growers, who desire to ship strawberries direct to consumers by parcel post, should see that care is exercised in picking and handling the berries in the field in order that they may not include green and overripe fruit, which not only detracts

street number is very essential, since the motor truck deliverymen will endeavor to make early delivery, and any hitch may mean unsuccessful delivery and spoiled fruit. Mark in large letters across cover, "Perishable," that the mail men may know that early delivery is essential.

It costs from 31 to 35 cents to mail the 16-quart crate of strawberries within the first and second zone limit, or about 150 miles. Loaded, the crate weighs from 27 to 31 pounds. The 32-quart crate, for the same distance, would mean mail bill of from 60 to 70 cents, which compares well with express rates today, while the mail promises superior delivery and handling for perishables.

### Shipping Raspberries and Cherries

In mailing raspberries, it is essential to use shallow containers of small capacity, in firm crates. Raspberries are of such a delicate texture and of such a structure that they have a decided tendency to mass together and it is difficult to provide ventilation for quart baskets. The fruit should be handled as little as possible after being picked, while crates containing raspberries should not be handled too much before being delivered to the post office. The cost of mailing raspberries is slightly higher than strawberries or blackberries because the shipment must be made in pint baskets. A 32-pint crate, complete with baskets, costs from 35 to 39 cents, the weight being from 31 to 34 pounds. This will deliver the crate within a radius of 150 miles of the farm. Only dry and firm berries should be shipped by mail, as the loss will be too heavy for others.

Seventy-five per cent of the cherries mailed arrived at destination showing no damage from treatment while in transit, and no extra care was used in preparing these shipments. Farmers were told to pick and pack the fruit as they had in the past for local markets, which shows that the mail route offers exceptional opportunities for the cherry grower who will use

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proper care in picking and packing his fruit.

The ventilated crate is best for mailing cherries. This is the same as used for strawberries. The weight is about the same, and the cost is not different. Care must be exercised not to break stems or skin of the fruit, and only perfect cherries should be placed in the baskets.

It is certain that in the very near future we shall see a great direct-from-farm-to-consumer trade developed in the United States. The Post Office Department are now devising methods of making the farmer and the consumer acquainted, and the various postmasters are only too willing to give any farmer full detailed information how to prepare shipments. The mail clerks are exercising every reasonable means of handling perishable shipments carefully, and giving quick delivery. A crate of strawberries, it was found in the experiments, even when mailed 150 miles, was delivered to the consumer about 20 hours after leaving the farm. This is far superior to any express service we have had.

#### CAN YOU TELL MR. MARSHALL?

Editor of the AMERICAN FRUIT GROWER:

About twenty-five years ago there was advertised in the middle west a strawberry that was reputed to have been particularly acceptable to the delicate digestion of invalids and convalescents. Its agreeableness and harmlessness to these classes caused it to be sought for them far and wide by those who knew of its qualities; and its reputation among the neighbors by whom it was first prized, if my memory does not go amiss, was what brought it to the attention of the nursery trade. I believe it was sometimes known as the invalid's berry, though that was not its catalogue or commercial name, which, unfortunately, I have now forgotten.

My object in writing is to ask that you or your readers identify this valuable strawberry by its commercial name, if it so happens that you or they know where it is catalogued or where it may be had.

The descriptive "valuable" is used advisedly, for my distinct impression of the experience I had with it twenty years ago is that the berry deserved the reputation it bore. So much more stress is now laid by physicians, boards of health, domestic scientists, and life extension specialists upon the importance of correct diet and of the proper fruits in the diet than was customary a quarter of a century ago that the time seems most opportune for reviving and extending the popularity of the berry which is the cause of this inquiry, and not of this particular fruit only but of any other that is conspicuous in its class for surpassing excellence in dietary emergencies. W. F. MARSHALL, Raleigh, N. C.

#### THE GENEALOGY OF A NECTARINE

By J. E. Bookstaver, California

I'm neither a peach nor a sugar plum,  
Though from them both I'm surely come  
But as quite plainly may be seen,  
I'm just "a peach" of a nectarine.

I'm bald of hair unlike the peach,  
And as a plum I'm out of reach;  
But as a cross of both, I'm seen  
To be a sweet little nectarine.

My father was a sugar plum—  
My mother a peach who loved him some,  
And that is the only reason, I ween,  
That I'm a lovely nectarine.

"Tis from my father I get my taste,  
And all the flavor with which I'm graced—  
And perhaps that part that's a little green—  
And so you have the nectarine.

Then from my mother—so to speak—  
I get my blushing, peachy cheek—  
My form and fascination glean—  
To win your heart as a nectarine.

But whether I'm only one-tenth peach,  
And nine-tenths plum—or one of each,  
Or nine-tenths peach and one-tenth plum, I  
ween,

I'm all the same a nectarine.

My taste is rich and racy e'er,  
My color and form are both so fair,  
Your palate will gather nothing mean  
About the taste of a nectarine.

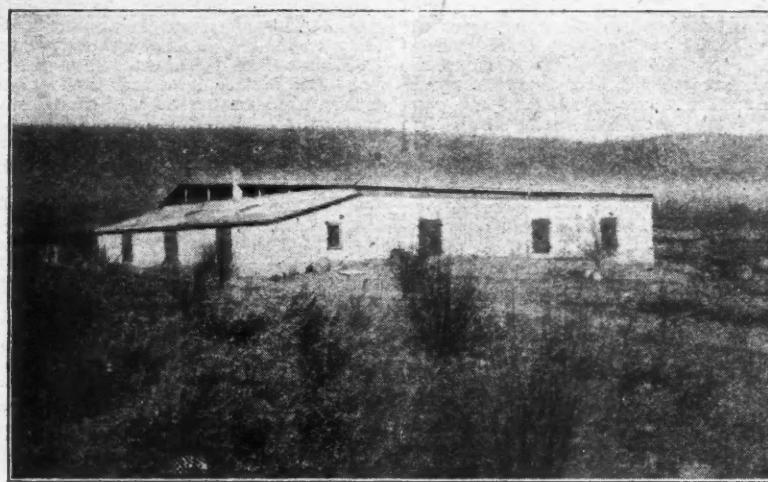
Then take me gently between your lips,  
And hold me there with your finger-tips,  
And let your thoughts be all serene,  
As you taste the joy of your nectarine.

So my lady fair, I crave the bliss  
Of touching your lips with a luscious kiss;  
And as against your lips I lean,  
You'll fall in love with a nectarine.

## Concrete Storage House

By S. P. Miller, West Virginia

THIS is a photograph of the concrete storage at the apple orchard of W. S. Miller Co. Cost of this house was \$3,400. This includes hauling and labor as well as material. Prices are much higher now in every item.



Cost of This House \$3400. This Includes Hauling and Labor as Well as Material. Prices Are Much Higher in Every Item Now

The building is 84 by 96 feet, built of hollow concrete blocks. The storage is in one room and holds 15,000 barrels. The sorting room is built lean-to style, is 81 feet long and 21 feet wide, with overhead, or roof window, lights. There are eight outside doors 5 by 7 feet.

wood and another of concrete. All are reported quite indispensable by their owners.

We have just installed an electric light system in our storage, which we think will be a great help to us in the midwinter packing season, enabling us to make longer days and do more satisfactory work.

## New Books

### "How to Make Your Will"

By William Hamilton Osborne

Everyone who has not already made a will should read this book. Its contents can be mastered in ten minutes by the ordinary man unacquainted with legal terms. Its simplicity and directness are remarkable. Though everyone is advised to employ a reliable lawyer, at an expense of from \$10 to \$25, to make his will, yet simple forms which cannot be misunderstood, and which suffice for all purposes of a perfectly legal will, are given in the book. These incur no expense and astonishingly little trouble. This small book will prove as interesting to the man with a few hundred dollars as to him who owns a considerable fortune. We advise our readers to get this book.

Published by Small, Maynard & Company, Boston.

### "The Fairview Idea"

By Herbert Quick

"A Story of the New Rural Life," and a most interesting story it is. For those who live on the farm or wish to do so, as well as for the too large number who feel that they would like to turn to city life, this thoroughly readable story brings a vital message. You'll read it like a novel and you'll gain worth while ideas from it. Mr. Quick is well known, chiefly, perhaps, through his book, "The Brown Mouse." His sympathies and his helpfulness are both devoted to the cause of the farmer. The farmer himself could not do better than to read what he says as to the possible fair future of country life.

Published by Bobbs-Merrill Company, Indianapolis, Ind.

### "The Science of Plant Life"

By Edgar Nelson Transeau, Ph. D.

This is a profusely and beautifully illustrated book on botany, of 336 pages, including index, primarily for the High School student, it carries out a new thought," says the World Book Co. "The book embodies a response to the attractiveness of plant life, a steadfast scientific spirit that yields neither to sentiment nor utility, and an appreciation of the fact that the fundamental reason for giving botany a place in our general scheme of education is that it is the natural scientific background for the great plant-producing arts." Prof. Transeau himself states that the book has been written to

supplement laboratory and field work with plants, not to take the place of such work. Suggestions for laboratory and field work will be found preceding each chapter.

Published by World Book Co., Yonkers on Hudson, and can be bought from the AMERICAN FRUIT GROWER for \$1.48.

### "The Business of Home Management"

By Mary Pattison

This fine book is written as the result of the work of a group of American women, whose object was to discover the real obstacles to successful home management and the best means to overcome them. The servant problem is here answered, and we learn to do away with the drudgery of housework, while retaining all the fine elements that go to the making of home life. It is invaluable to the beginner and useful to the experienced housewife. It covers the entire field of home management in a way no other book has ever done. Published by Robert McBride & Co., Union Square, New York.

### THE AVOCADO

Dully green, in somber shading,  
With a skin severely bare;  
And the darker shades pervading;  
Like a pendant giant pear;  
Like an emerald tear-drop pending;  
Like a jewel gleaming, rare,  
With the glinting foliage blending,  
Hangs the Alligator Pear.

But its heart is soft and mellow,

Just a fruity juicy paste—

Rich as butter—creamy yellow—

And delicious to the taste.

Like the pearl so closely bidding

In its homely oyster shell,

So the Avocado's hiding

A delicious pearl as well.

—Jacob Edgar Bookstaver.

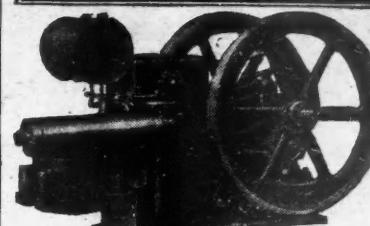
Who'd throw dollars out of the window?  
Yet many farmers throw manure out of the stable onto a heap where much of its fertilizer value is lost.

Any kind of a numbskull can be waited on and served, but to serve requires skill, patience, good judgment, industry and tact.

Lists of horticultural plants and seeds should be cut and only the best left. We have more varieties than we need.

More than \$1,000,000 worth of ginseng is grown yearly in the United States.

## NEW PRICES



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The Briston Mfg. Co., Dept. J22—  
es. W. O. W. Briston, Omaha, Neb.

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We have 67 copies of the Fruit Grower Guide Book in stock which we are anxious to place among our readers and if you will be good enough to send us two subscriptions for one year at 50c each we will give you a copy of this book absolutely free.

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though printed several years ago will be found to be a help to the beginner and will serve as a handy reference manual for the busy orchardist, as it contains 60 illustrations and 285 pages of valuable information.

There are articles on each of the following subjects: The Orchard, Orchard Heating, Thinning and Harvesting, Packing, Spraying, Orchard Pests and Diseases, Principles of Pruning, Profits in Fruit Growing, Small Fruits. The facts outlined in these articles have been compiled from magazine articles written by practical orchardists as well as from bulletins issued by the Bureau of Plant Industry of the United States Department of Agriculture and the State Experiment Stations. This is an exceptional offer and will not be repeated. We would therefore suggest, that if you desire a copy of the Guide Book that you secure the two subscriptions early and forward them to us promptly as we have only 67 of these books and can therefore fill only the first 67 orders we receive. Write to

AMERICAN FRUIT GROWER, Chicago

### Dry Your FRUITS and VEGETABLES

It can be done without loss of food value or much of the flavor.

This all metal machine is easy to operate, saves time and will make you money. Capacity 2 to 4 bushels per day. Can be shipped by Parcel Post. Shipping wt. 19 lbs. Price \$7.00, f. o. b. York, Pa.

YORK FRUIT DRIER CO., YORK, PENNA.

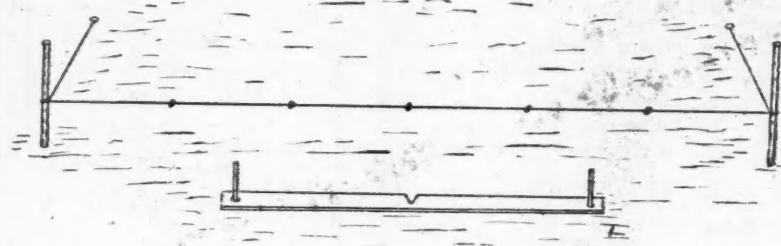
## How We Blasted Tree Beds Without Disturbing Stakes

By B. L. Turner, Pennsylvania

WHEN our orchard was planned, the spraying and borer questions and one or two others seemed to offer some difficulties, but the blasting of the tree beds appeared to be about the simplest job to be done. When the crowbars and the powder were taken to the field, however, a number of practical problems presented themselves.

The tree rows had to be straight, of course, and to get them so required careful measuring with a wire. A blast, however, usually moved the stake over it, several inches, even when the charge was so small

handbooks directed, but before he moved a stake, he placed the board with the notch on the stake and drove two other stakes through the holes in the end of the board. This completed the ordinary two-stake method of laying out an orchard. The blast had eight feet of ground to break before it could disturb the two end stakes. The center stake, of course, was removed and not again replaced. In this case the blasting was done in the fall and trees planted the next spring, the two stakes of course standing there at each hole all winter, ready to hold the board



A System for Planting Fruit Trees

that the surface of the ground was barely heaved. To measure first for the blasting positions, and to measure over again for the trees themselves would help matters little because there is enough error in all such second measuring to put one off the blasted bed by the time the farther side of the field would be reached. To get the trees lined up right and to get the blasted beds square under them with one measuring was the problem.

The difficulty was worked out and that without any extra labor over what would have been required for a first-class job of lining up the trees without the blasting. The materials needed were three stakes for each tree, a board eight feet long with a three-quarter inch hole bored close to each end and a two-inch notch cut from one side at the center. The stakes were cut from some brush that was cleaned out of a ditch along one side of the orchard. Several thousand of them were chopped into shape by one man in half a day.

The orchard ground was first measured carefully, and one stake placed exactly where each tree was to stand. The blaster then came through with his crowbar, ready to make a hole where each stake stood, and to load his blast as the powder

for marking the place for the tree trunk in the notch.

It can be seen that the two stakes would have been necessary for a first-class job had the holes been only dug, because the center stake would have to be removed during the digging. The tree positions were measured off in the first place with a wire about 200 feet long (making ten trees), to which was attached at the ends two wires just the length needed to reach back across to the previous row of stakes. At the ends of the long wire were fastened rings two inches in diameter. The side wires were fastened in these rings, also, and had rings of their own on their other ends. Every 20 feet along the main wire some copper wire was wrapped and soldered in place. To use this required only one man if he was equipped with three short iron rods for stakes; though four men of course could use it much faster than one.

The blasting was done in the fall because the ground was dry then and would probably not be as dry again, before too late to plant the trees in the spring. As it was, when the ground was shoveled out for the trees, it was loose and mellow for several feet around each blast.

## My Motor Truck

By Russell Adams

I AM a farmer.

Every city dweller is a prospective customer of mine.

Many individuals have been trying to show me how to increase my production when they should have been telling me how to market. The average farmer understands the production end of his business, but he is a novice when it comes to marketing.

You can best serve our interests by showing us the best method of marketing.

Our motor truck has proved to be a wonderful aid in helping us market our farm products to the best advantage.

Incidentally our motor truck has aided several city dwellers in a substantial way because it has enabled us to deliver fresh farm products right at their doors for considerably less than they would have paid at their local market.

In practically every farming community countless thousands of pounds of valuable, perishable fruits and vegetables go to waste annually for the very good reason that the small town, located nearby, offers no market for this product. The farm motor truck is doing its share to eliminate this yearly loss of food because it enables the owner to transport these products to points where a demand exists.

The farm motor truck is the deadly enemy of that parasite known as the small-town-commission-man. For hundreds of years he has fattened off the producer and

consumer, but—he is passing. Peace to his ashes.

What did you pay for choice beef last December?

One day in December a neighbor drove his truck up to my gate and asked me if I wanted some nice beef. We looked at the meat and I asked the price:

"Seventeen cents a pound if you pick it; fifteen cents if I pick it," was his answer.

While weighing the cut I selected he told me that he had disposed of nine beefes in six weeks. Much of this meat was sold in a little city sixteen miles away.

That's just a little incident to show you what the truck will do for you, be you farmer or city man.

That's eliminating the middleman to the satisfaction of both producer and consumer.

Having farmed for thirty years we realize the shortcomings of the horse. Our motor truck has not replaced the horse on our farms by any means, but it has eliminated the horse as far as hauling is concerned.

Much of our farm products are sold to us at a loss at our shipping station which is three and a half miles from the village. By the team method of delivery the cost is exactly thirty-five cents per ton mile to move our products on cars. By using the motor truck we have reduced the expense to fifteen cents per ton mile. Quite a

I am a farmer but I know considerable about city life, and if I was so unfortunate as to be forced to live in a city about the first thing I would do would be to connect with some farmer, who owned a motor truck, living fifteen or twenty miles away. I would arrange with him to supply me with fresh country produce in season. He would profit by the transaction, so would I, and for that good reason we would both be satisfied.

The farm motor truck is going to do more to reduce the cost of living than any piece of farm equipment invented in recent years.

The farm motor truck is the friend of both consumer and producer. It is of more help as far as local conditions are concerned than is the railroad; who ever heard of a railroad car going out into a field, picking up a few bushels of potatoes, stopping at the orchard for a few sacks of apples or peaches, stopping at the house for a case of eggs and a tub of butter, and then wending its way to the city and delivering those eatables right at the door of the consumer? The railroad is all right when it comes to the long carload haul, but it is a joke when short haul, less than carload shipments are considered.

The farm truck is doing more toward bringing about universal good roads than all other things combined, and good roads means cheaper transportation, cheaper living and better living.

Here's to our best friend, the motor truck—our private railroad.

### KEEP THE BACK YARDS CLEAN

By Mrs. B. F. Wilcoxon, Colorado

Nature appeals to all that is noblest and best in man, and the cry of the twentieth century, "Back to Nature," is a significant sign of the dawn of the "simple life" of which we hear and read so much. No class of people have such ample opportunities for the adornment of the home grounds as the farmer, and yet in comparison with the advantages he possesses I think I am safe in saying that no people fail to avail themselves of their opportunities as does the farmer along that line. I have observed this else I would not dare make so sweeping a statement.

The average back yard is not a thing of beauty—and when it becomes a place for cans, scraps, etc., it is a sad commentary on the good taste of the occupants. Suppose a few families join in carrying out this idea. Can you imagine how a whole neighborhood might be made to blossom as a rose. Why not begin a friendly rivalry along these lines?

When we speak of the home grounds we do not mean the front yard alone, but the back yard, the barnyard, the garden, the roadside and the adjoining field as well. Neatness is the first requisite in our improvements. Outdoor improvement clubs have been organized in our cities with the object of bettering home aspects, each member agreeing to plant at least one tree and spend one day in cleaning up, repairing or removing old fences, renewing walks and drives, etc., and adding as much as possible to the attractiveness. The whole premises should be cleared of trash that has been accumulating these many years. Perhaps there is little time to spare during the busy season, but if care is taken to keep things cleanly, much of this work will be avoided.

### FARM POWDER NEEDS NO LICENSE NOW

Farm powder, the great universal farm hand of the truly progressive farmer is at last relieved from the exacting sales regulation, imposed by the Bureau of Mines, as a protective measure against enemy agents.

The federal government has spent vast sums in recent years to test the efficiency and economy of farm powder for ditching, subsoiling, tree planting, stump and boulder blasting and road making. Consequently, one of the very first activities of the Bureau of Mines, now that the war is over, is to revoke the act requiring a license to use explosives for farming purposes.

Farmers who have used and profited by farm powder, and those who have still to discover its great economy and convenience will be delighted to know that they no longer have to bother with a pesky old license.

Farm powder may be bought now with no more trouble or inconvenience than before the war. Any dealer may supply it without requiring anything more than a simple request, on the part of the farmer.

# Poultry for Profit



## Successful Flocks of Chicks

By Mrs. Don Willis, Oklahoma

I HATCHED the prettiest, liveliest, most uniform bunch of Barred Rock chicks the middle of last June, I have ever had, and they proved the most profitable.

Yes, I know, as a rule, June chicks are not worth raising. There are reasons for this, which may be overcome. But I must not stop here to explain. I had about all the chickens I wanted, and hesitated about setting my incubators again, but I was curious to experiment on June chicks. I put my little 150-egg incubator in a cool room in the house. I used eggs one and two days old, from two-year-old stock, testing every egg before it went into the incubator, with a tester containing a magnifying lens attachment, to be sure all was well inside. Rejected all that had shells too porous, they being the kind that evaporate and never hatch. I selected eggs of medium size and color.

I ran that incubator about half the time without fire, in the afternoon. The weather was hot. I tested out all infertile eggs at thirty-six hours, ten in number, and replaced them with eggs from under a hen I had set at the same time (all fertile).

### Used Only Strong Germs

I tested frequently, keeping all weak germs out, replacing with strong ones, supplied by "Biddy" who was keeping up with the incubator. In this way no impure air was ever allowed to get into the incubator from dead germs. These poisonous gases are fatal to the embryo chick, whether in February or August.

That little house in which those little germs should develop into strong chicks must be at all times sweet and clean, with plenty of pure air, moisture, and proper amount of heat. I looked into one or two eggs every day when I turned and aired them, to see if they had the proper amount of moisture—one or two tells for all.

On the 20th day 148 strong baby chicks kicked themselves free from the shells that had so long bound them, to live from now on in the sweet, cool, green grass; no brooder for them. They were scratching in the sand inside of twenty-four hours. I fed them cracker crumbs and oat meal at thirty-six hours. Kept a dish of wheat bran by them always; clean cool water was on all sides.

### A Good Brooder Helps

I kept them in a home made brooder, which I would like to tell you about some time—it was a good one, at any time of year, clean and practical.

I had a few of those cold, damp, windy days we often have in June, as a reminder that winter had but recently passed by, which sometimes brought a cold rain that would whip against the glass door in a threatening way; but I knew all was well within. That coop was made with all this in mind. No use hatching chicks unless we have a receptacle that will protect them.

I never allow hens to waste their energy raising my chicks. We had a wheat field across the road from where the chicks roosted, and when they were two weeks old they would go in a body across, and just lived in the wheat it being cool and shady. I used three coops 30 by 32 inches, for the bunch, but put them all close together, and they all ran together.

### Chicks Loved Wheat Field

I have seen more than one automobile stop till to wait for that flock to cross the road. But they were not more than two months old when, as soon as the screen door was opened in the morning, they would fly from the coop. And I have seen half that flock fly clear across the road

without ever alighting, to get to their feeding grounds. Their shade was gone, but the feed was there in abundance, yet. They were vigorous, healthy chicks and made strong chickens. About two-thirds were pullets, and they began to lay very early. I think a few of them began to lay at five months.

In January and February I got more eggs from those pullets than all the rest of my flock. And I had about five hundred hens.

It was a case of well bred, well hatched and well raised chickens. It pays to do what you do well, and then quit. "Slap-bang, hit-and-miss, any-old-way" never produced anything worth having.

### FATTENING GEESE FOR MARKET

B. H. L. Spooner

While some breeders of geese begin the fattening for market abruptly, it is better to begin gradually. It is a huge mistake to cut off the supply of green feed when beginning the fattening process. It is essential that stock for fattening have a good appetite and this appetite the green feed furnishes.

When the range becomes poor, it is a good plan to add to the grazing ration a daily meal of boiled potatoes, turnips, or other roots mixed with corn meal or shorts. Some growers feed all the oats and corn during October and November that the birds will eat.

For two or three weeks before penning for the final fattening process, geese should be liberally fed three times a day with boiled potatoes and corn meal, with plenty of milk or water to drink.

### Keep the Geese Quiet

The final fattening takes from two to three weeks. During this time the geese are confined in a small space where they have no room for exercise. To aid in digestion, the pens are kept as dark and quiet as possible. This induces sleeping which aids materially in the digesting process. A good menu for this period is as follows: morning meal, two parts corn meal, one part bran, one part beef scraps; noon meal, equal parts of oats and wheat; night meal, plenty of corn. Along with this grain diet, the cooked vegetables should be continued. Unless feeding to produce large livers, three times a day is all that is necessary for geese to be fed.

When feeding to produce the large livers used for pate-de-fete, five or six weeks before marketing the birds are put into separate coops so small they can take no exercise. During this time they are fed five times daily. The last week is a hard one on the grower as the geese are fed every hour day and night. This feed consists mostly of corn meal mush, together with all the water they will drink. As a result, the geese get wobbly fat, weighing as much as a large turkey with a liver weighing from three to four pounds.

### ATTENTION FENCE BUILDERS

During the annual Farmers' Week at Cornell University, N. Y., C. H. Guise pointed out the fact that 500,000,000 fence posts in the United States fall by decay each year. At 10 cents per post this amounts to an annual loss of \$5,000,000. Non-durable woods, when used as fence posts, have an average life of from three to six years, but if properly impregnated with creosote their life would be prolonged from fifteen to twenty-five years and even longer. Mr. Guise stated that, by the use of the lighter creosote oils, any of the so-called non-durable woods can be made to last from three to five times their normal period when in contact with the soil.

## Look inside the lid!



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You can readily identify the Victrola by the famous Victor trademark "His Master's Voice." It is not a Victrola without the Victor dog. This trademark is on every Victrola. It guarantees the quality and protects you from inferior substitutes.

The word "Victrola" is also a registered trademark of the Victor Talking Machine Company. It is derived from the word "Victor" and designates the products of the Victor Company only.

As applied to sound-reproducing instruments, "Victrola" refers only to the instruments made by the Victor Company—the choice of the world's greatest artists.

Look inside the lid—insist upon seeing the famous Victor trademark. On the portable styles, which have no lid, the Victor trademark appears on the side of the cabinet.

**Victor Talking Machine Co., Camden, N. J.**

## NOW IS THE TIME TO BUY A FARM IN GOOD OLD U. S. A.

Although the war is over, the demand for food continues. The business of producing things to eat, therefore, gives promise of paying satisfactory dividends.

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## Building Gravel Roads

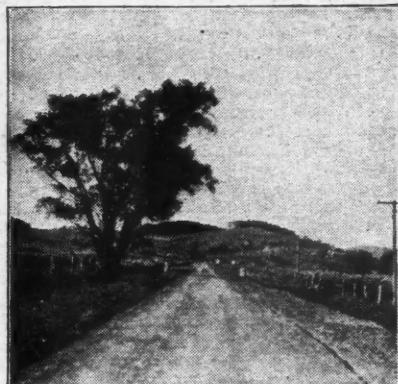
Continued from page 10

give a high quality of grading which will give very good results in a road. The community will often find it to their advantage to waste a certain amount of the gravel in a pit in order to bring it somewhat nearer these proportions. On the other hand, certain communities will find that they cannot afford to go to this expense.

### Methods of Building

There are two methods of building gravel roads that are quite commonly in use in this country. One is known as the trench method and the other is sometimes called a feather-edge method.

In the trench method after the grading is done a ditch is opened up in the center of the road and the gravel deposited in layers. The idea of the trench is that the



A Newly Made Gravel Road Well Built As to Width of Grading and Culverts

gravel is confined to a certain area and danger of wastage is lessened. This method is open to some criticism as it requires considerable more gravel to get a good mileage of any width. Ordinarily it is built about the same thickness across the entire width of the road. Very often drains are built from this trench to the side ditches to permit of the escape of waters which may have seeped down through the gravel surfacing.

The so-called feather-edge type is one where the gravel is placed directly on the grade without any supporting earth shoulders. This type of road is called feather-edge because gravel is placed as thick as desired in the center and allowed to feather out to nothing at the edges. Such a type of course is one that requires somewhat more maintenance than the trench method as at certain times the traffic is liable to cut through the thinner edges and these ruts must be filled. However, it has advantages in that smaller yardage will cover a larger area or, in other words, for the same amount of gravel you can get a wider width of traveled way. Another advantage that it has is that it is better drained as by putting a slight crown in the grade any water that may seep through the gravel will find an outlet to the ditch without the use of any drains. This naturally tends to keep the gravel more compacted and hence lessens the amount of rutting that would occur.

There is no doubt there are many miles of gravel roads already built in communities where there is a good deal more gravel than necessary. That is, many of them could better be repaired by scarifying them and raking out the larger stones and recompacting the gravel than they can be by hauling in additional gravel. It is often even possible to widen some of the narrow gravel roads to a greater width without additional material with this method. It has been too easy to merely haul in and dump a few loads of gravel and call that maintenance or repair.

Counties that are blessed with gravel supplies are blessed with one of the very best kinds of road materials and will no doubt find a continued use for them where the traffic is merely local.

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# The Orchard Home

**A Section for Orchard Women and the Children  
Edited by Mary Lee Adams**

## Let There Be Light

HAVE you ever paused a moment to realize the primal importance of LIGHT? The very first words of God, as recorded in the first chapter of Genesis, are "Let there be light." In the sequence of the acts of creation, light was the foremost. "Darkness was upon the face of the deep. And God said 'Let there be light,' and there was light. And God saw that it was good." The Lord knew that Life and Light must go hand in hand, and so, when man was created, he found daylight waiting for him.

In the Garden of Eden daylight was sufficient. Adam had no chores to do after sundown, and Eve looked just as pretty by moonlight, so they were content. But as soon as they were driven out of Paradise and told "In the sweat of thy face shalt thou eat bread," then the necessity for some sort of supplementary light was felt.

This need has been met in various ways, more or less satisfactory, from that time on. The old stone lamp of Egypt was perhaps as highly prized then, as is the modern electric light, but just as the old stone lamp will not fill present day needs, so we think that the rising generation of farmers will refuse to be satisfied by anything short of the electric power plant on the farm.

Already many farms are so equipped, and where you find the electrically lighted farm you find the farm of high efficiency. Not only is there pleasure in electric light, the convenience and the time-saving, but there are other very important considerations regarding electricity.

In the first place it is the best kind of fire insurance. No flaring candle, no oil lamp or lantern to knock over and light the hay or the window curtain.

Then it is a high type of eye insurance, electricity being the nearest approach to daylight known to science. There may be lots of after-the-war jobs for blind men, but farming is not one of them.

In the short winter days, a multiplicity of chores that cannot be squeezed into daylight hours must be done, and unless there is sufficient light they cannot be done well. Winter too is the real educational season on the farm for both children and grownups. It is after supper that the children learn their lessons and that the farmer and his wife find time to read magazines, books and papers. If this is done by dim, smoky

lights, the result will be disastrous for old and young.

But the comfort of the electric power plant is not felt only, or even mostly, in winter. Summer and winter it will pump water, milk cows, turn grindstones and cut wood, and for the women of the family it will run the washing machine, the electric iron, the churn, the fans and the sweeper. When we think of the backaches that woman has suffered from sweeping alone, it is sufficient to show the great need of something which will spare her in this as well as in so many other of her manifold tasks.

The AMERICAN FRUIT GROWER wishes that every reader had his home electrified so that the farm family might be saved a thousand troubles and worries. It is good to know that a great and growing number of farms are installing power plants, and that the farmer is coming to realize that, no matter what kind of crops he raises, the best plant for the farm is the electric power plant.

## Rural Church as Social Center

WHILE many heads are sadly shaken over the decline of the Church in America, the Methodist Episcopal Church is giving unmistakable signs of healthy vitality. Among other farseeing and progressive movements, this church has decided to raise \$105,000,000 in the next five years for social welfare and world betterment work, and what they decide to do is about as good as done.

Of this amount \$40,000,000 will be spent on betterment work in the United States and \$5,500,000 will be devoted to helping the farmer and his family, the dual object being to make farming more profitable and rural life more agreeable for the entire community. For one thing, men who expect to become rural pastors will have special training in agriculture so that they may be of real, practical value to the farmers of the less developed districts. Already the church has made arrangements with some educational institutes, and is entering into negotiations with many others, so that they may co-operate in establishing training centers for rural leadership.

Where there are no state agricultural colleges, demonstration farms are planned where the best methods of farming suited to the locality will be practiced, and which will serve as a lesson for all. A home im-

provement campaign and lectures on good housekeeping will meet the needs of the farm woman. The latest and most satisfactory way of canning and preserving will be demonstrated and this hot and heavy task will be robbed of most of its terrors. Emphasis will be laid upon the immense advantage of modern appliances in the home.

Recreation will not be by any means left out of the program. If the neighborhood as a whole cannot enjoy foreign travel, they shall at least be given a stereopticon and illustrated lectures on life in foreign lands, current events and other broadening topics. Efforts will be made to secure circulating libraries and to help the people to find time to read the books. In every way the church will strive to become the center of social life. Social and educational functions of many kinds will be planned and the dread of isolation removed from rural life. Co-operation of all other denominations is sought in working out a county farm bureau, a county welfare bureau, a county library system, boys' and girls' club work, and health campaigns.

## Make School Grounds Attractive

THE GROUNDS of rural schools, particularly through certain sections of our broad land, are frequently neglected. One of the surest means of inducing children to take a pride and interest in their homes is to let them learn from attractive school surroundings how much pleasure and comfort can be added by proper planting.

The child who sees and admires the shrubs, trees or flowers at school, is pretty sure to go home with the idea, "I wish we could have some like that at home." This is the promising seed that will bear fruit in the improvement of many home grounds in a rural community where the school grounds are properly laid out and kept up with a certain degree of care.

A most instructive and beneficial contest for school children would be started if the teacher were to offer a small prize for the best suggestion from any individual or class as to a suitable planting for the school grounds. A little talk with the scholars beforehand on the beauty of trees and shrubs, would be an incentive to pupils to draw plans, and to carry them out if encouraged to do so.



## BEAUTIFYING THE HOME & GROUNDS

By Mary Lee Adams

**I**N OUR last thoughts on beautifying the home and grounds, we considered the natural beauty of growths beside a brook. You can readily extend this along the banks or reaching back from them, especially if the stream runs along below a hill and the wild planting be carried up the wooded slopes. Almost any country place may suitably have a wild garden. I will tell you of a little one I used to love, for it seems easier to picture what one has seen than to visualize mere theories, and it may be that, when you have heard how simply it can be devised, you will wish to do something of the same kind.

This modest but interesting wild planting grew beside the home of an old lady, herself as frail and sweet as a white tea rose. All flowers were her friends, she knew and loved the garden beauties but closest to her heart, I think, nestled the shy wild things she lacked the strength to seek out in their native haunts.

So loving hands of a whole countryside brought to her, bit by bit, the choicest treasures of woodland and stream, and year by year these were set about the foot of a great oak that shaded the southern gable of the quaint cottage. The dwelling stood on a hillside, most attractive of sites when, as in this case, a wooded slope rises close behind. The cleared ground in front fell by grassy terraces to a broad meadow with a stream running through, and beyond were blue mountains.

### A Retired and Lovely Home

The approaches on either side wound under arching boughs and amid clumps of mountain laurel—kalmia and rhododendron. A dense thicket of rhododendron, with its twisted branches, dark shade and rosy pyramids of shell-pink bloom, surged up the mountain side to the left. The broad, flat top of the front terrace greeted the eastern sun with floods of color, being gay with blossoms from the earliest bulbs to the latest chrysanthemums.

A little withdrawn to the south, just beyond the low French windows which opened onto a paved porch level with the ground, grew the wild garden, clustering around the big oak. In such a position it naturally needed lots of leaf mold to keep the ground loose, moist and mellow as suited to the needs of the shade-loving plants that flourished here as happily as in their forest glades.

Many dainty ferns, but chiefly the delicate maidenhair, made a cool green wreath about the foot of the old tree. Timid hepaticas almost trod upon the melting edges of the lingering snow, and tall purple monkshood bowed at last to the first frosts. Came white Canada violets and spring anemones—the fragile windflower. Came dog-tooth violets, spotted and golden—in reality a little lily of the daintiest. Rare native orchids added interest, pink lady's-slipper (in the picturesque vocabulary of the country "whippoorwill's shoes"), yellow cypripedium, poised like a butterfly for flight, odd rattlesnake plantain with its curiously marked leaves. Here nodded columbines, and beneath them small, sturdy lion's tongues with harsh, pointed leaves and peary blossoms sticky with honey.

Just a round plot not many feet in diameter, and yet such a variety found place within its charmed circle that, even if one could get no farther than the paved porch, here was always to be found a breath from the deep woods. When I think of that loved old lady of by-gone years, it is oftenest as she stood beside her favorite flower bed, leaning on my arm and teaching me many things about the little natives of the forest which she knew so much more intimately than I, in spite of the fact that I roamed the woods and fields at will. If this privilege be yours, you can readily secure material for a delightful wild garden.

Unless there be a fair extent of grounds, and consequently of roads and driveways, an avenue need not enter into your home beautifying plan, yet in its proper place it may be of great value. Even a short double row of trees is a fine addition to the home grounds.

There are so many varieties suitable for this purpose that, wherever you live, you may select something fine and well-adapted to your locality. Have you noticed that, as a rule, the trees of the plains and level places spread wide, while those growing in precipitous scenery taper to points? Exceptions may, of course, be found, but it is a suggestion from nature as to what appears harmonious with certain contours of landscape.

### Some Good Avenue Trees

Perhaps from early association, I still think there is nothing quite so beautiful, dignified and hospitable as the wide avenues of old southern plantation homes, where giant live oaks, evergreen and massive, waving graceful streamers of Spanish moss, spread their great arms in welcome. The ideal end of such an approach is the majestic pillared house of colonial type. One should be cautious of planting an avenue of magnificent trees that is to lead to a lowly bungalow. The expectations of persons entering by such an aristocratic route rise, subconsciously, to a height where a rude shock might be felt at finding nothing more imposing than an unassuming dwelling as the objective of all this grandeur, and they would fail to appreciate the real charm that may be found as truly in the cottage as the palace.

Graceful birches are dainty as can be on either side of a road, and are less stately than some other trees. Leafy maples of many varieties are delightful for shade and beauty. Nothing is better than the superb elm, thought by many to be our finest tree. Lombardy poplars, with their straight, narrow shafts to foliage, are decorative and reminiscent of the highways of France. California poplars have the merit of very rapid growth, but there is a black mark against their greedy and penetrating roots which stretch out into drains and wells in search of moisture and often cause trouble in this way.

Hemlocks are nothing less than glorious where they attain to great size, yet I know of but one such avenue and it is, naturally, in the mountains. In the dense, brown shade of their drooping boughs lovers or poets might feel equally at home, and their slender tops do "almost reach the sky." A splendid avenue tree, and one that grows with amazing rapidity in right conditions of soil and climate, is the white pine. It is handsome, ever green and has the added advantage of scattering a soft, springy layer of brown needles, agreeable under foot and a perfect carpet for playing children.

Formal palms, where they can be grown successfully, give a touch of tropical color, but to my eyes they are too stiff and artificial to suggest one of the most gracious attributes of trees, their free and spontaneous form of growth. However, palms may be very picturesque and they also are ever green. In more northern localities it is perhaps as well for the leaves to fall and the sun to get a chance to reach and dry the roadbed. Pepper trees of feathery foliage, and exotic looking eucalyptus, shaggy giants of Australia, may be seen along California roads.

A fruit grower's magazine would blush to omit fruit trees from the list of those suitable for avenues, and indeed no such list would be at all complete without them. Less lofty than some, there is, nevertheless, nothing more charming for the orchard home. The fact that their fruit furnishes a source of income, makes them even more desirable.

He that is rich need not live sparingly, and he that can live sparingly need not be rich.



## Electricity in the Orchard Home

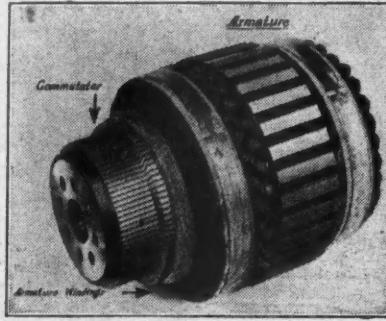
by E. N. Cable



DURING the past months the interest that has been aroused in the possibilities of electricity for use on the farm naturally has led to an increased interest in this force—electricity itself, aside from the various uses to which it is daily being put in country homes. A brief presentation of some of the elementary facts covering the subject will perhaps not be amiss.

The electricity you will use in your country home will be developed by means of an electrical generator. If current comes from a central power station this generator will be a part of the equipment of the big power house. If there is no central power plant with which you can be connected, then you must operate your own electric generator.

This generator is made up of an armature, pole pieces, field coils, brushes and wires to convey the current to the switchboard. The armature is the part of



A Modern Type of Generator

the generator in which the current is generated. When this armature is made to revolve, current flows through the armature windings to the segments of the commutator. Here it is changed from alternating to direct current, then is taken up by the brushes which make contact between the commutator and the electrical wires that carry the current away to be used for light and power or to be stored in the storage battery.

As was stated, it is when this armature is rotated rapidly that electricity is produced. This rotation must be steady and dependable if the flow of electricity is to be constant and uninterrupted and several different forms of power, or methods of applying it have been tried out through the years during which more or less experimentation with independent electric plants has been going on. Probably one of the earliest methods was the application of water power, by means of the water wheel or turbine. But this is always subject to such influences as freezes, floods or droughts, which cause the electric service to be interrupted and of course that is not satisfactory, though it affords an inexpensive method when it does work.

### The Gas Engine and Electricity

Then the gas engine was developed and this has been belted to the generator so as to rotate it and so produce electricity. A still later development has been the self-contained generating plant, where the gas engine, which drives the generator is built with the generator into a single unit. The crankshaft, supporting the engine at one end is extended to hold the armature of the generator at the other. Of course as the engine drives or turns the crankshaft round and round, the armature must turn with it, making just as many revolutions as the engine end of the crankshaft makes.

The advantage claimed for the direct-connected unit, of course is that it does away with the chance of any belt loss, as of slipping, stretching or breaking, making a more efficient electric unit.

But there are several points that will confront the prospective purchaser of an electric plant. Numerous developments

have been made in the gas engines. Where once water-cooling was the only method available, now dependable air-cooled plants can be secured. Kerosene for fuel is being used in some instances with results every bit as satisfactory as are obtained from gasoline.

### The Question of Voltage

Along with the questions of cooling and fuels will come that of voltage. The volt is the unit of electrical pressure and the voltages commonly used for farm installations of electric plants are 32 and 110. Any other voltage would not be practical, but all electrical appliances or accessories, motors, fans, lamps, vacuum sweepers, heating devices can be secured in either of the above voltages and either voltage will afford satisfactory service.

The 32 volt pressure is lower, of course, than the 110. Because of this low pressure it cannot be carried over long distances as 110 volt current can, but for furnishing electricity about groups of farm buildings, 32 volt current suits admirably. The lights will be just as bright and the power just as strong with the low voltage as the high, within its limits. This is due to the influence of another electrical unit, the amperage. This means, the rate of flow of the electric current. So, the 32 volt current, having a low voltage, or pressure, must have a higher rate of flow, or amperage, in order to produce a certain electrical result. This electrical result, or unit of electric power is the watt. It is the product of volts x amperes. So we can have a 20-watt lamp of either 32 volts or 110 volts. The difference will lie in the amperage and the amperage can be determined by dividing watts by volta.

It should be understood that the voltage of the electric plant will determine the size of the storage battery—for there should be a storage battery. It is a law of the storage battery that there shall be approximately 2 volts per cell. So, with the 32-volt plant there will be a 16-celled storage battery, with the 110-volt, 55 cells, and so on. Where conditions will permit, of course the 32-volt plant will be least expensive because with it a small number of cells will suffice.

The care required by the dependable, well-constructed electric plant of today is very slight and there is no feature of farm life today more beneficial nor pleasing than electricity secured from a satisfactory and dependable source.

### Wash Day Made Easy

One of the hardest jobs for the housewife is the weekly washing and one of the greatest labor savers about the farm home is the electric washing machine. Many farm homes are coming to enjoy the benefits of electricity and usually, one of the first electrical accessories they adopt is a washing machine operated by electricity.

Usually they are arranged so that the electric motor will run not only the machine itself, but also the wringer. This pretty well does away with the hardest of the work of washing. If the farm home has a pressure water system, there need be little pumping or carrying of the wash water, for with handy faucets and rubber hose, the water can be forced about to the wash boiler and to the rinsing tubs, so that lifting is reduced to a minimum.

Besides the hard work saved, electricity to run the washer makes possible a considerable time saving. While the electric motor is running the washing machine, the housewife can clear away the breakfast dishes, pack the children's lunches, feed the chickens, make the beds, do all the routine work that ordinarily must wait or else crowd out a part of the precious time that they feel should be devoted to washing. Farmers' wives who have changed from the old way tell us they save from two to four hours every week on a washing, besides all the old backache and general depression of spirit that attends the old way of observing wash day.

for June, 1919

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Home

**Better Housekeeping**

by Lillian Ring

**LIVING OUT-OF-DOORS**

EACH year the living-out-of-door idea has become more popular until it has at last reached the stage where the really livable home has an outdoor living room that is a permanent summer institution in a permanent place. While this may be a pergola or a tea house on the grounds of an elaborate home in many instances it is a screened-in porch furnished in a comfortable and attractive manner. If we are adding this porch let its location be selected with a view to convenience in arrangement and service, such will be square and roomy in shape and size and will have easy access to the kitchen.

See that this new porch has a broad rail, wide enough to be useful as well as ornamental for it will serve every purpose from bench to lounge between times to a serving table at meal times.

**Furnishings**

A table will be needed; it may be inexpensive, an old one given an appropriate coat of paint or two, or a new one. The more substantial it is the better for during these summer months it will afford itself to many uses. A number of chairs are to be included in the furniture both rockers and straight backs and a rustic bench if it may be had is an added attraction. Old wooden chairs painted and cushioned make comfortable, pleasing additions to the wicker, reed, bamboo, and fibre pieces that the shops show. A day bed, Newport hammocks or a swing add to the luxury and completion of the furnishings.

If one cares for a swing that is roomy and comfortable no better one can be purchased than a single spring and mattress to fit. This is suspended from the ceiling by four chains and its unsightly characteristics are concealed beneath a fitted cover on which are thrown enough pillows.

There are many kinds of outdoor rugs that make ideal floor covering. Indian and rug rugs are used in good taste though they do not stand the weather like many of the fibre, straw and pulp ones now on the market. These have been treated to stand the weather and even though they get discolored with the weathering never look as bad as the wool or cotton subjected to the same usage and, too, they are cooler under the feet for the sultry days to come.

**Awnings and Curtains**

There may be awnings or curtains to keep out the sun, weather and dirt. Curtains are the more practical as they answer all these needs excepting the first in a more efficient manner. There are the roll curtain made of slate or canvas, the pulley curtain made of both these materials or the draw curtain made of canvas which with rings attached are run on rods at either the top only, or both top and bottom. We use the last kind mentioned on our home with success though the roll curtain has one advantage in that it is more out of the way when not in use.

For the color scheme, use plain neutral colors of putty or gray, with old blue or dull green on the floor, curtain material and perhaps one or two chairs or all of the furniture if you wish to keep the scheme plain but the gayety and life of cretonnes and chintz add much and are very pleasing. Cretonne covered pad cushions both on the back and seat of the wicker chairs, and a foot rest covered with the cretonne brings the decorative note to the floor. An old-fashioned arm-chair can be covered in this way and be both brought out of the common place as well as made to do excellent service. Wicker and cretonne lamp shades are particularly attractive if lined with some color that gives a soft restful glow.

This season's cretonnes are wonderful in color combinations—the dull greens, mustard, old blue, flat rose, peacock, putty color, and softer toned mulberries are all desirable colors to be used in porch cretonnes.

Have your ever treated your family to outdoor meals? This is one of the most

charming phases of living out-of-doors. At first this service may appear a little difficult to arrange but with the assistance of the many modern devices designed to assist porch or garden serving, the increased amount of work is negligible, if it is indeed increased at all. Among them the tea wagon with its removable tray and shelf space beneath will prove of the greatest aid. If the family is not large, all the service articles may be wheeled out at one time and the wagon return for the hot foods or other foods which might become dry if too long exposed to the air. During the meal the wagon may serve as a side table and receiving table for used dishes. If one does not wish to purchase anything as elaborate as a wagon, there are numerous less pretentious models of wicker which may be had at reasonable prices. The main thing being to lighten your labor and provide a delicious meal in a unique and unusual fashion.

And another important feature of these summer meals de luxe is "the eats." It will easily be seen that the food must be modified somewhat to suit the simpler service and conditions of the outdoor meal. My own experience has been that this very simplicity of food and service is part of the charm of the meals. I find what I call the "plate service meal" best adapted to outdoor serving.

Even if this outdoor serving is not an every day practice, you will find that the occasional breakfast and the Sunday night supper of this kind will prove to be a time looked forward to and anticipated with joy by the whole family.

**THE WORLD IS FAMISHING!**

Provision is our responsibility.

"It has taken a world calamity, a catastrophe without precedent in history, to remind us of what we never should have forgotten—that the farmer is carrying in his strong arms the destinies of nations; that our welfare, even our very lives, cling closely to the results of his work in fields, gardens and orchards."

The great future progress of the farmer, on which depends the sustenance of the peoples of the world, must be built upon knowledge of the successful results of others.

This knowledge is made available through the printed page and most actively so through periodicals.

Hence the need for a key to these periodicals.

The Agricultural Index provides an average of 22,615 entries from 1,480 issues of seventy-eight agricultural periodicals during the year; also additional references to many agricultural bulletins, pamphlets and reports.

It is published monthly except in August and December, fully cumulated quarterly and a bound record for the year, in one alphabet, is supplied in January as part of the subscription.

The H. W. Wilson Company, 958 University Avenue, New York City.

**BLOOM REPORT**

If present indications of the apple crop in Virginia are borne out at harvest time the state will have an approximately full crop of this fruit as the bloom seems to be heavy in all sections of the State. Peaches bloomed well in all districts reporting but have suffered from frost in middle and southwest Virginia. In spite of the untimely cold weather in the northern counties the latter part of April, fruit blossoms were unharmed up to April 29th. The outlook for extensive markets and for good prices this year seems very promising at this time.

**VIRGINIA 1919 MEETING**

At a meeting of the board of directors of the Virginia Horticultural Society held at the secretary's office in Winchester it was decided to hold the 1919 Annual Convention in the city of Roanoke on December 2-3-4 beginning with an evening session on December 2.

**The HOUSEKEEPERS EXCHANGE**

by Edith Randolph

In beading crepe de chine if the pattern is basted under the material, it may be done more easily than transferring the pattern. Sew through the paper and when complete tear off the pattern.

S. A. G., Pennsylvania.

When putting rods through lace curtains, put a thimble on the end run through the curtain and save tearing it.

G. J. K., Vermont.

Before cutting a marshmallow cake, wet the blade of the knife well in cold water. This prevents the marshmallow from sticking to the knife and crumpling the cake.

J. H., New Jersey.

To mend a small hole or slit in an umbrella, stick a piece of adhesive plaster over the place on the inside of the umbrella. This is both inconspicuous and waterproof.

E. L. C., Rhode Island.

To cut hot brown bread, place a linen thread around loaf where you wish to cut. Cross the thread and pull both ends until the slice is cut.

E. M. P., Vermont.

Grow a rose geranium for use as well as beauty. When baking cake turn the hot

layers out on a clean rose geranium leaf for a fine flavor. Drop a leaf into the bottom of the jelly glass and pour the hot jelly into it. Its fragrance will blend with the flavor of the jelly and prove delicious.

F. M. T., Arkansas.

Pumpkins will keep all winter in the cellar without becoming mouldy if the stalk end which was attached to the vine is covered with sealing wax.

L. A. D., Indiana.

To prevent a kerosene lamp from smoking, soak the wick in strong vinegar for one hour each month letting it dry before replacing it in the lamp. It will also give a much brighter light.

S. A. B., Oklahoma.

Use black mosquito netting as a foundation for darning large holes such as boys wear into their stockings at the knees. This makes a firm, quickly done darn.

S. Z. P., Ohio.

When buttonholing a scallop on fine material, stitch around the entire scalloping with the machine. This prevents any tearing between scallops.

H. R., Maryland.

**by Beatrice Holmes****Delicious Plain Shortcake**

2 cups bread flour	$\frac{1}{2}$ teaspoon salt
4 teaspoons baking powder	4 tablespoons butter
	2 well-beaten eggs

About 1 cup cream

Mix dry ingredients. Rub in butter. Add eggs and cream to moisten. Pat one half dough into well-buttered pan, brush with melted butter and place other half over this. Bake in moderate oven twenty minutes.

**Apple Snow**

5 apples	4 eggs
1 cup sugar	$\frac{1}{2}$ pint cream

Few grains cinnamon and nutmeg

Stew apples, rub through sieve, sweeten with sugar, season with nutmeg and cinnamon. Beat egg whites until stiff and fold them into the cream. Fold this into the apples. Heap into a baking dish and put in oven until light brown on top. This served with more whipped cream is tempting and nutritious for the convalescent.

**Baked Eggs in Tomato Cups**

3 tomatoes	Salt
6 eggs	Pepper

Wash and cut tomatoes in halves. Remove centers. Place in buttered pan. Sprinkle inside with salt and pepper. Break one egg into each tomato half and bake until egg sets. Serve with tomato sauce made from removed pulp.

**Rolled Vanilla Wafers**

$\frac{1}{4}$ cup butter	$\frac{1}{2}$ cup flour
$\frac{1}{2}$ cup powdered sugar	$\frac{1}{2}$ teaspoon vanilla
	$\frac{1}{4}$ cup (milk and cream)

Cream butter and sugar. Add rest of ingredients in order given and beat thoroughly. Spread mixture, thinly and evenly on an inverted, buttered dripping-pan, smoothing it out with a broad knife blade. Mark in 3-inch squares and bake in a slow oven until delicately brown. Roll.

**Carrot Chowder**

$\frac{1}{4}$ pound fat salt pork	4 cups diced potatoes
4 cups diced carrots	1 teaspoon salt
$\frac{1}{2}$ cup chopped onion	$\frac{1}{4}$ teaspoon pepper
4 cups milk	1 tablespoon butter
	1 tablespoon flour

Fry pork in kettle until golden brown. Add vegetables, cover with boiling water and let simmer until vegetables are tender. Season with salt and pepper. Melt butter, add flour and milk, stir until smooth and add to vegetables. Let simmer five minutes and serve hot with crackers.

**Combination Vegetables en Casserole**

8 small whole potatoes	4 tablespoons drippings
5 medium sized onions	2 tablespoons chopped parsley
2 teaspoons salt	$\frac{1}{4}$ teaspoon pepper

Pare potatoes and onions, place in greased casserole. Add drippings and seasoning; cover and bake until tender. Remove cover, sprinkle with parsley and serve from casserole.

**Fried Ham With Onions, Green Pepper and Tomatoes**

1 pound ham sliced thin	$\frac{1}{4}$ teaspoon salt
2 onions sliced	Few grains pepper
$\frac{1}{4}$ teaspoon sugar	1 chopped green pepper
$\frac{1}{2}$ tablespoon ham drippings	$\frac{1}{2}$ cup canned tomatoes

Fry ham, remove from pan to a warm place. Add sugar to pan and also extra drippings. Add onions and pepper and cook until tender. Add tomato and seasonings and cook until thick. Pour on hot platter, place ham on top and serve.

**Potato Omelet**

8 slices bacon	2 well beaten eggs
3 cups mashed and seasoned potatoes (hot)	

Fry bacon, remove from pan. Mix potato and egg; press into bacon drippings and cook until brown on bottom, fold over in halves. Remove to platter and garnish with bacon.

**Dandelion Salad**

1 quart dandelion greens (young)	4 tablespoons vinegar
$\frac{1}{2}$ teaspoon salt	4 slices cubed bacon
	1-6 teaspoon pepper
1 teaspoon scraped onion	

Cook cubed bacon—remove from fat. Mix 8 tablespoons bacon-fat with vinegar, onion and seasonings and pour over dandelions which have been washed well and chilled. Garnish with bacon cubes.

**Cherry Cup**

1 pint flour	$\frac{1}{2}$ teaspoon salt
Stoned, sugared cherries	2 tablespoons butter
$\frac{1}{2}$ cup milk	Sugar
	3 teaspoons baking powder

Sift together flour, salt and baking powder, rub in butter. Add milk and knead lightly. Roll into a thin sheet, cut into five-inch rounds. Put 12 stoned cherries into center of each round. Fold over in dumpling fashion. Bake in gem pans. When nearly done brush over with equal parts sugar and water, dust with granulated sugar and brown. Serve warm with cherry sauce.

# FOR OUR BOYS AND GIRLS

By Edith Lyle Ragsdale

**DEAR FRUIT GROWER CHILDREN:**

Here we are in the lovely month of June, the month of roses—and strawberries! Isn't everything pretty these days and isn't it good just to be alive and watch things grow—to say nothing of the delight of eating strawberry shortcake!

I am giving you some more puzzles this month. Hope you will solve every one and send in our answers.

I am just wondering if the boys can't tell me something about bats? And the girls, too. I have decided to give a prize to the boy sending in the best letter about bats—and I have a prize, also, for the best letter sent in by a girl. For the boy I have a flashlight and for the girl I have a dandy crochet set. Now let's see who gets the prize. With love and best wishes,

EDITH LYLE RAGSDALE,  
American Fruit Grower, Chicago.

**MOTHS**

A moth is something like a butterfly; but it is not a butterfly. You can tell the difference by looking at the antennae. A moth's antennae tapers to a point and a butterfly's ends in a knob. When moths rest their wings are horizontal; then they do not fly about, much, in the daytime. They fly mostly at night.

One day my auntie and I were walking along a road and I saw something that looked like a brown leaf on a hedge briar. My auntie said it was a cocoon, the little house in which the moth lives. I took it home and one day in early spring it opened and sure enough a moth came out. At first it wasn't pretty but when it dried up and began flying around it was. The cocoon is made of something just like silk and is very tough. A caterpillar makes it and then goes inside and when it comes out it is a moth. My auntie says so.

MILLY MCCLELLAND, age 13,  
Sandoval, Ill.

**TANGLES**

No. 8—What kind of a bird is represented by the following: A small fowl, the letter "a," and the name of a river in Scotland?

No. 9—Black upon black, black upon brown, three legs up and six legs down. What is it?

No. 10—Johnny's mother asked him if he could spell hard water with 3 letters. Johnny said no; that it took 3 times 3 letters. But his mother did spell it with 3 letters. Can you?

**Answers to May Tangles**

No. 6—Fox, Glove. (Foxglove.)  
No. 7—Pear, Plum, Grape, Peach.

**"PEANUTS"**  
(A Puppy Tale)

(Book rights reserved.)

When I was two months old I was a handsome puppy. (I know one should never praise oneself but I mention it simply as a fact.) My hair was snow white and as soft as down; also, it was very long. My ears and nose were very sharp and my tail was beginning to show symptoms of being big and plump like my mother's. My eyes were still a hazy color but I heard Buddy tell Sis that they would change to brown when I grew older. This pleased me for of all things I wanted to look like my beautiful mother. She was so silky and white with such a magnificent plume of a tail and with the softest, most intelligent eyes. I believe I before remarked that she was pedigreed.

In the next few months I learned many things. I never meant to be naughty but for the life of me I could not keep out of mischief. Thus:

One day a lady came to call on the Mistress. Of course there was not anything remarkable in that as there were lots and lots of people calling at the big house. The only thing out of the ordinary about this lady's visit lay in the fact that she slipped off her rubbers before she went up the steps. Of course if she had carried them onto the porch it never would have happened, for I was, at that time, unable to climb the steps.

I had been very busy that day; I had barked at a new hatch of chicks, chased a grasshopper all over the lawn, ate a lightning bug, ran the kitten up a tree and, altogether, spent a most interesting

morning. Then, I discovered the rubbers. At first I ran all around them, barking at them just to see if they would walk. But they never moved a step. Then, by degrees, I came nearer. At last I pushed one with my nose and it tumbled over and shook, it was so scared! After that I barked again but it wouldn't get up and come to its mate, so I caught hold of it to pull it back.

When my teeth came together my jaws felt the funniest—just like something made them close then jerked them apart. It was something like the time Buddy fed me taffy—only more so.

I bit again; and again I had that funny feeling. So, just for fun I bit and bit and chewed and after a while I went over and played with the other one and when my jaws began aching and I stopped, some way those rubbers didn't look a tiny bit like they had before.

All of a sudden I began to feel bad. I don't know whether it was the lightning bug that I had swallowed or the sight of those rubbers which caused it. Anyway, I squirmed away back under the board walk to the place I chased the woolly worm and went to sleep.

I must have had quite a nap for it was some time before I realized what all the noise was about. Then:

"It was that horrid little pup that did it," I heard an angry voice say. "I never thought of him when I slipped off my rubbers—I had just purchased them, too, and—just look at them now!"

"I'm awfully sorry," I heard the Mistress reply. "I know Rex is mischievous, I should have been thinking of him. I shall certainly make good your loss."

I was sorry at that, for I knew that making up loss meant spending money for my pranks and, I also knew, money was not plentiful at the big house. But, the deed was done and as I could not help it, I curled up and slept all that long summer afternoon.

When I look back over my puppyhood it seems to me that I was always doing something that I should not have done. As a lawyer-friend of my Master's says: To wit:

One day the Mistress carried a basket full of fluffy, downy chicks up from the barn. They were "just-outs" and the squabbliest little things! One of them was what she called "dawny"—if you know what that means—and so, when she gave the rest of them to the mother hen she kept this one out until it should gain strength.

When the Mistress put the dawny one down I began barking and capering around it. I would lie down on my stomach and creep near it, barking and wagging my tail in the sheer joy of looking at it. After a while I went quite close. I even smelled it; then, I pushed it with my nose and the soft fluffy down tickled me.

I am sorry now that I was such a bad puppy—but—the temptation was great and my puppy-flesh weak. I kept pushing it with my nose and every time I did the soft, spongy body tickled me. At last I took it in my mouth and carried it out to my playhouse—you didn't know that dogs had playhouses? Then it's time you were learning. All dogs—I mean those which have real homes—have a particular place to which they carry bones, old shoes, sticks and the like. My playhouse was out under a big pear tree, and right out there I trotted with "dawny."

For a long time I played with it; tossing it up and catching it as it fell. It "peeped" a whole lot of times but after a while it lay quite still and wouldn't get up. I never could imagine what the matter was unless it was the dawny in it!

When it wouldn't peep nor run I lost interest in it and, as I had grown large enough to climb the steps by then, I took it up and carried it onto the porch.

When the Mistress came back from the orchard she spied it, first thing. I watched her as she picked it up, thinking she would fix it so it would run around and peep; but, I guess, the peep was clean gone out of it for she dug a hole and buried it.

I walked over to see what she was doing and she boxed my ears and called me a "naughty pup." I was awfully sorry, for, honest, I hadn't done a thing!

## Farm Homes Made Attractive

By M. D. Underwood, Illinois

I WISH to make a plea for more vines and flowers around the farm house. Bulbs, seeds and plants are offered so cheaply by seedsmen and nurserymen and yet how noticeable is the barrenness of many farm houses. So much may be done with vines it seems a pity that so many dwellings are without them. Almost any plain old farm house can be converted into a feast for the eye by a liberal use of vines. If there are no porches a light framework over the door covered with vines greatly improves the appearance of the building besides furnishing a shady

ering is removed and some fertilizer is plied between the plants and lightly raked into the soil. No more cultivation is given until the seedlings from seeds dropped the fall are old enough to reset. These may be removed to a new bed or left in the same bed, the old plants being pulled out when the young ones are ready to bloom.

### Two Beautiful Flowers

Dahlias and chrysanthemums are two of our most beautiful flowers and both are easily grown from seed. Our yard has not been without them for years. The dahlia is a rather tender plant as regards cold, hence the seed should be planted in a box or frame so the young plants may be covered for cool nights. The slight touch of frost will kill them. They are delicate at first but when they once get a good start and the roots begin to spread widely and deeply in the soil, they become very hardy and grow rapidly.

When the dahlia seedling is about four inches high lift it with a mass of soil containing all of its roots and set rather deeply in a previously prepared bed. The soil in which it is to grow permanently should be spaded at least two feet deep and should have mixed with it a large proportion of well rotted stable manure and poultry droppings. The location of the bed should be in moist but well drained soil. Choose a place where surface water from summer rains will flow but will not stand for a great length of time.

For a large growth of dahlias plenty of moisture and fertility in the soil are essential. If the soil in which they grow is moist and rich enough, dahlias started from seed in the spring will make plants two to three feet high by August when they begin to bloom. The blossoms may be of all kinds, single, double, quilled and of all colors. By the end of the growing season good-sized tubers will have been formed and can be dug and stored for next season.

### Growing Chrysanthemums

In our experience, the growing of chrysanthemums from seed is more interesting than the growing of dahlias. The plants will not blossom until late in the fall or early winter, until the other flowers are gone and when blooms are much appreciated. Chrysanthemum seeds may be planted any time in early spring, in flats in the home or outside according to the weather. The plants, young and old, are hardy and will stand much cold without injury although it is well to cover them on cold nights.

When the chrysanthemum seedlings have produced the second or third root leaves, transplant to small flower pots or berry boxes, using rich loam for potting soil. Leave them in these pots or boxes until real settled summer weather has arrived. They will demand less care if the pots are set close together in a light frame and the space between them filled with fine soil to retain moisture. The base of the pots should rest on the bare ground and only enough top moisture be supplied to keep the plants growing moderately. When well-settled, warm weather comes, transplant the seedlings in rows in the garden and cultivate like ordinary vegetables.

If berry boxes were used for first transplanting, set box and all in the soil. When pots are used, knock out the ball of earth and set in the garden without disturbing the mass of roots. During the summer keep the side shoots pinched off to induce growth of a single stem. During the last week of August carefully lift the plants and transplant them where they are to remain permanently, being sure that good drainage is provided. At the time of transplanting pinch out the center of the plant to induce lateral branching near the top.

### TWO NEW FRUITS

Two new fruits entirely unknown to either Europe or America have been found in the Philippines, according to reports.

One of these is the durian, which grows on a lofty tree somewhat resembling an elm, is about as large as a coconut, has a shiny shell, and contains a creamy pulp which combines some of the flavor of delicious custard with those of a fine cheese. American soldiers in the Philippines have dubbed the durian the "vegetable limburger." The other rare fruit is the mangosteen; but the exquisitely flavored liquid it contains has not yet been successfully preserved for shipping.



Asters Are Excellent for Cut Flowers



These letters prove

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"PAYS FOR ITSELF"*

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Delco-Light is actually saving many dollars each year on more than 70,000 farms.

If you are without electric light and power on your farm—you owe it to yourself as a good business man to investigate Delco-Light.

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We have just prepared a "PAYS FOR ITSELF" Bulletin which contains letters, affidavits and photographs from Delco-Light users.

If you will just write us, we will be glad to send your copy.

A Delco-Light Dealer near you will be glad to tell you how to electrify your farm, without any obligation on your part.

Delco-Light is a Complete Electric Light and Power Plant—Self-Cranking—Air Cooled—Ball and Roller Bearings—No Belts—Thick Plate—Long-Lived Batteries

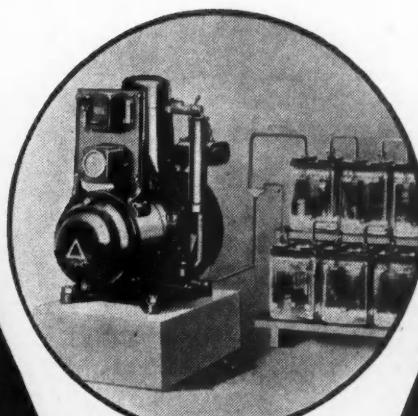
### RUNS ON KEROSENE

The Domestic Engineering Company, Dayton, Ohio  
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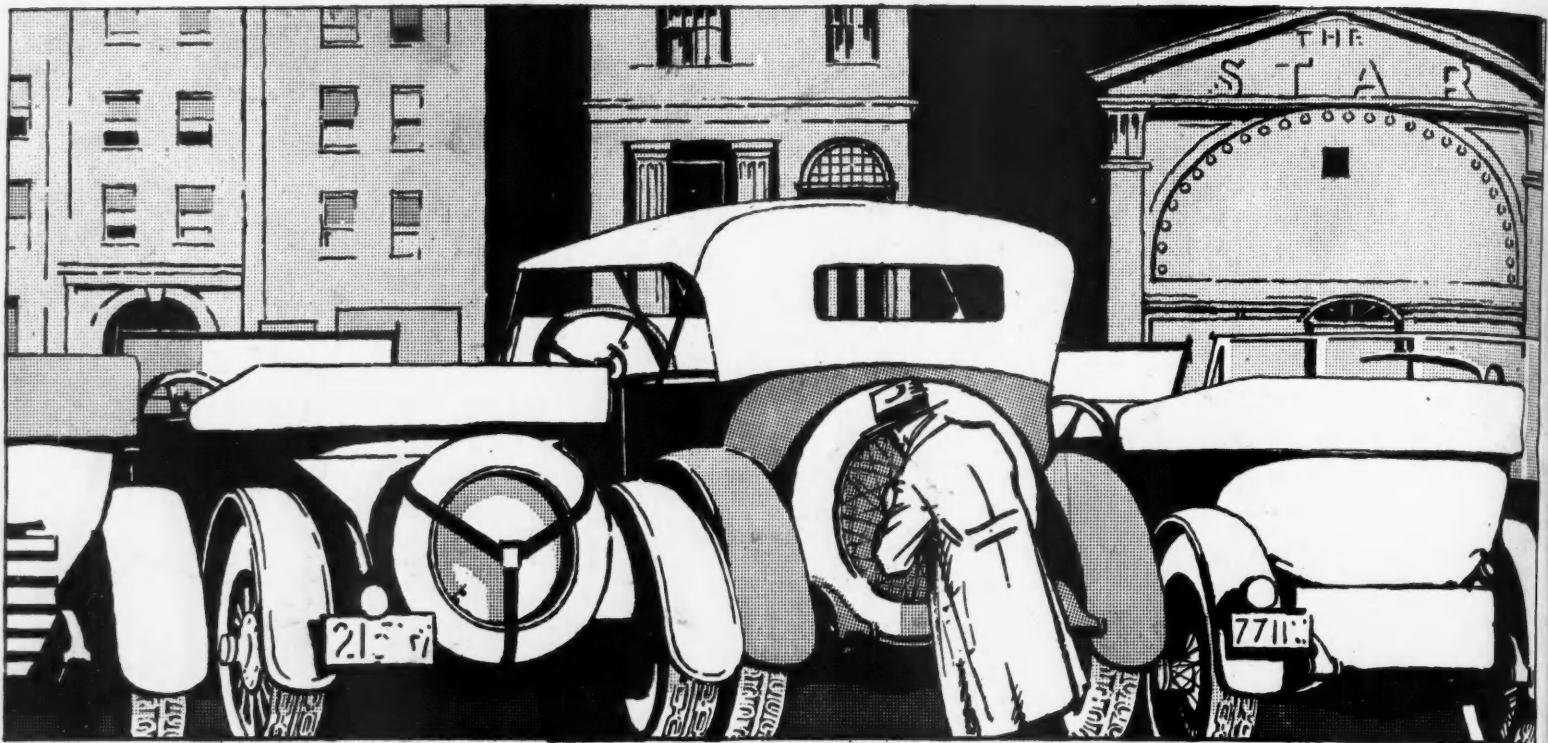
DELCO-LIGHT  
is actually  
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me the time  
of two men, or  
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yearly.  
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# DELCO-LIGHT



## Next Time You're In Town—

—notice the number of cars you see equipped with United States Tires.

You'll find the proportion surprisingly large.

And if you were to look at the cars on Fifth Avenue, New York, Michigan Boulevard, Chicago, or other fashionable thoroughfares, you'd find the same preponderance there.

Everyone—folks in the cities, villages or on the farms want tires of known value and lasting dependability. War and war work taught them the thrift of driving on good tires.

It is sheer merit—*built-in-goodness*—that has created the tremendous and growing popularity of United States Tires.

Our ideal—to build good tires—the *best tires* that can be built—is appealing to rapidly growing numbers.

It ought to appeal to you.



**United States Tires  
are Good Tires**